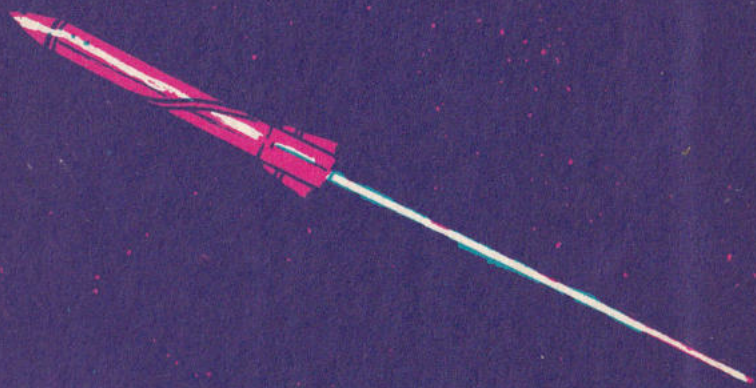




Mike Mars and the Mystery Satellite

DONALD A. WOLLHEIM





**MIKE MARS AND
THE MYSTERY SATELLITE**

Other Books in the Mike Mars Series:

MIKE MARS ASTRONAUT

MIKE MARS FLIES THE X-15

MIKE MARS AT CAPE CANAVERAL

MIKE MARS IN ORBIT

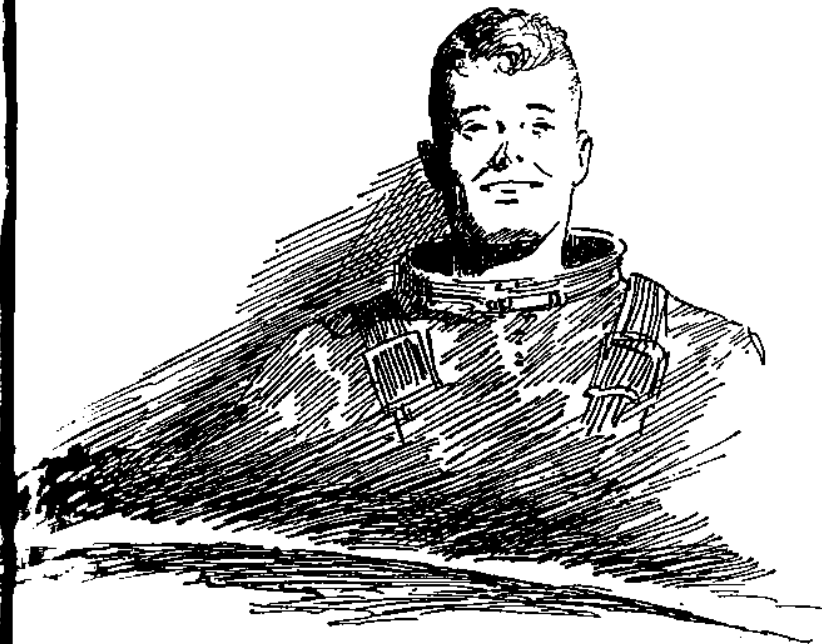
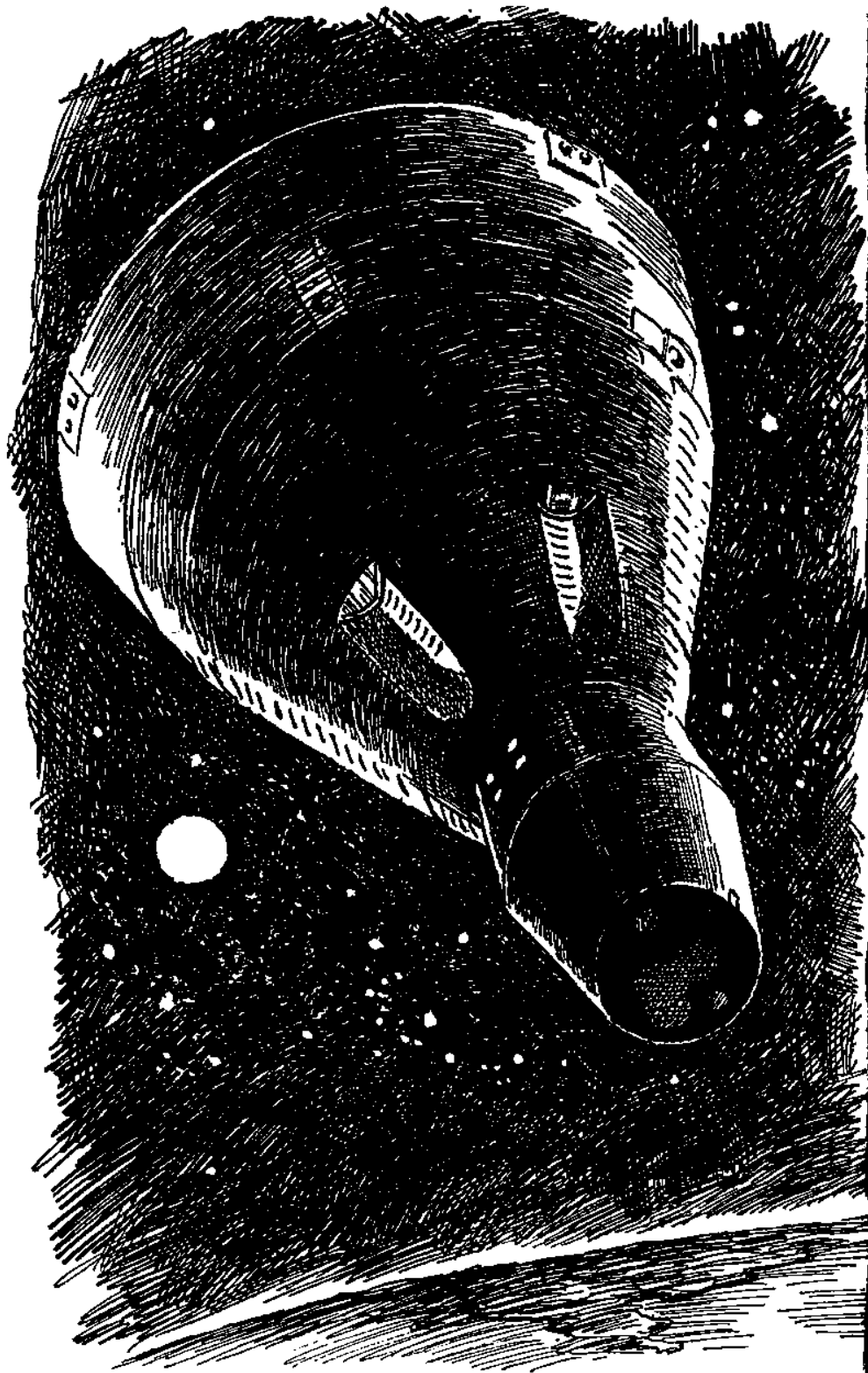
MIKE MARS FLIES THE DYNA-SOAR

MIKE MARS, SOUTH POLE SPACEMAN

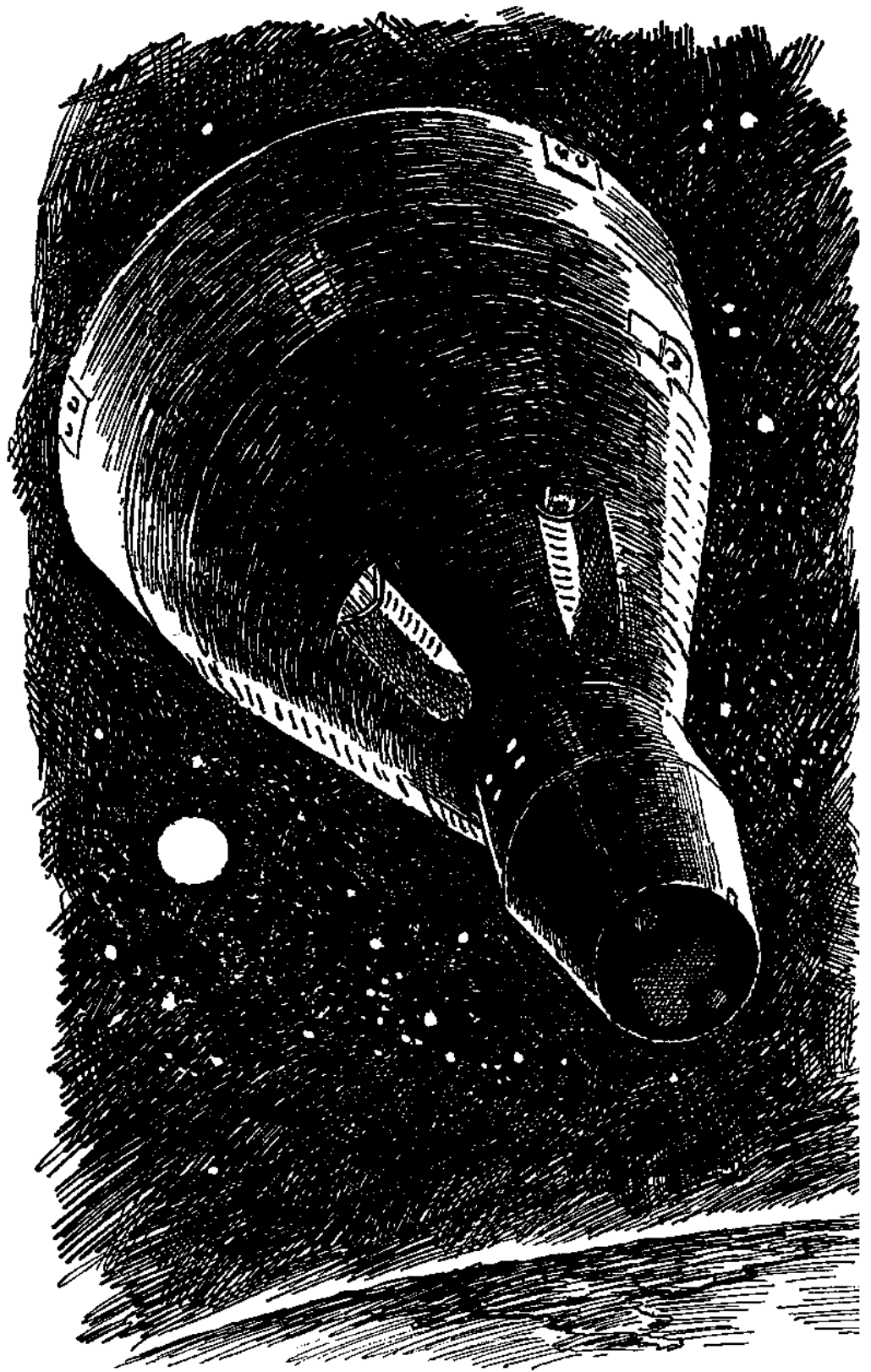
Mike Mars and the Mystery Satellite

DONALD A. WOLLHEIM

ILLUSTRATED BY ALBERT ORBAAN



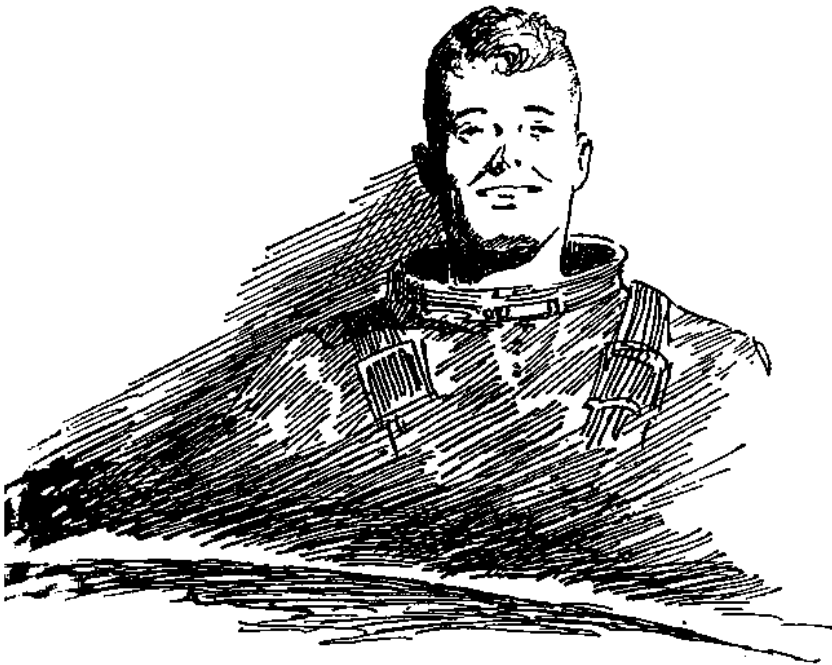
DOUBLEDAY & COMPANY, INC., GARDEN CITY, NEW YORK



Mike Mars and the Mystery Satellite

DONALD A. WOLLHEIM

ILLUSTRATED BY ALBERT ORBAAN



DOUBLEDAY & COMPANY, INC., GARDEN CITY, NEW YORK



Library of Congress Catalog Card Number 63-18231
Copyright © 1963 by Doubleday & Company, Inc.
All Rights Reserved
Printed in the United States of America
First Edition

Special Acknowledgment Notice

The author wishes to extend his personal thanks for the valuable assistance rendered him in the course of preparing this book by the United States Air Force and the National Aeronautics and Space Administration. In particular, thanks are due to the staff of the USAF Book Program, to the ISO staffs at Vandenberg Air Force Base, California, and Brooks Air Force Base, Texas, to the News Communications Branch of the Manned Spacecraft Center, and to the Public Relations Office of the McDonnell Aircraft Corporation.

CONTENTS

1. <i>Blind Spaceflight</i>	13
2. <i>Grounded</i>	24
3. <i>The Silent Satellite</i>	33
4. <i>Four Come to Guaymas</i>	42
5. <i>Blabbermouth</i>	51
6. <i>Studying Gemini</i>	61
7. <i>Signals Red at Canaveral</i>	70
8. <i>Skyhook Emergency</i>	79
9. <i>Countdown at Vandenberg</i>	88
10. <i>White Knight One</i>	97
11. <i>Window in the Sky</i>	106
12. <i>Two into Space</i>	114
13. <i>The Agena Beacon</i>	123
14. <i>Rendezvous in Space</i>	134
15. <i>The First Real Spaceship</i>	143
16. <i>Decoy for a Deadly Duel</i>	152
17. <i>Inside Gamma 9</i>	163
18. <i>The Red Eagle Swoops</i>	174
19. <i>Through the Arctic Portal</i>	183

MIKE MARS AND
THE MYSTERY SATELLITE

CHAPTER 1

BLIND SPACEFLIGHT

"THE trouble with this spaceship," Mike Mars said, "is that we're flying blind. We never get to see the sights of outer space."

He reached over, adjusted a dial on the console of the spacecraft's board. Strapped in his contour chair, he watched the panels before him, some of their lights red, a couple green, several dials registering. There was a round disc for a television viewer but it was a grayish blank.

Sitting alongside him in a similar seat built to conform to the exact measurements of his body, was another young man of the same age who, like Mike, also held the rank of a captain in the United States Air Force. Unlike Mike, whose hair was sandy and whose gray eyes sparkled in a slightly freckled skin, the co-pilot's hair was jet black and straight, his nose rather sharp, and his skin faintly ruddy.

Johnny Bluehawk, for that was Mike's companion on this strange expedition, breathed out slowly. "The next time they set up a flight like this, they ought to think about letting the space crew get at least an occasional glimpse of the stars."

"Or a shot of the moon. After all," said Mike with a twinkle in his eyes, "we passed the moon some days ago."

"Either that," was the reply, "or maybe we're still circling it."

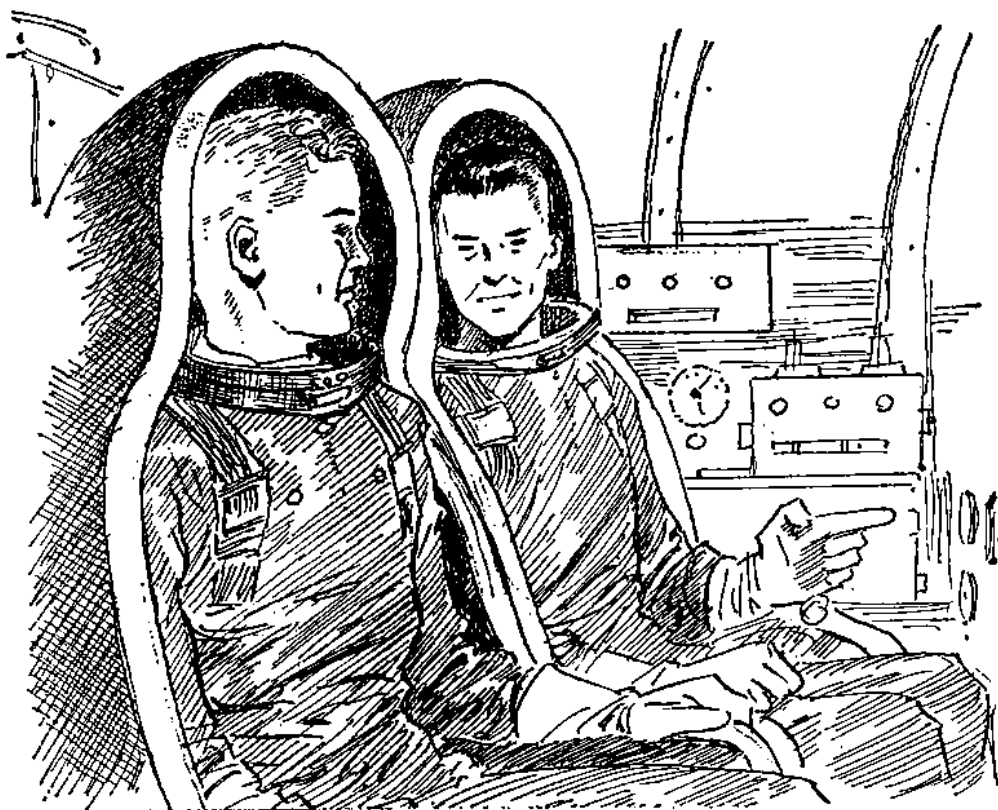
The pilot of the flight laughed. "Don't say that. They'll believe we think we're off course and make us do the flight all over again. You know perfectly well that, according to the flight schedule, we did circle the moon. We circled it in a closed orbit for a couple days and now we're on our way back."

"Ha," said Johnny. "It wouldn't be such a dull trip if they had allowed us to see what we circled. Who would want to go into space without ever seeing the sights?"

"You could read about them in a book," said Mike, reaching over and shoving in a switch. "I've put the controls on automatic. The rockets are off now, and we should be coasting in for a while, before making the reversal and starting to work into an Earth orbit." He glanced at the con-

trols, then consulted a chart on the side of the curved wall next to the blank viewer plate. "In two hours, seventeen minutes, thirty seconds, to be exact. Then we give it the works according to instructions, and we'll be past the danger point."

"Yes," said Johnny. "A couple of hours in that chair is enough for this stretch. Those lights could get you hypnotized."



Mike Mars and Johnny Bluehawk

"Time to snatch a bite, and get a bit of rest, before going into the final turn," said Mike, un-

snapping the straps that held him to his piloting chair. His friend did the same. In a few moments, both young men were easing their way out of the cramped quarters before the controls, and working their way around them.

The cabin was small, but still quite adequate. Compared to the area inside a space capsule, it was luxurious.

There was exactly enough room for one bunk, of the fold-out from the wall variety. There was a built-in food locker, and a small heating unit, also of the fold-away kind. There was a tiny fold-down writing table, a unit containing several books and manuals. Space was strictly limited. It might be compared to the cramped quarters of a prison cell, which in certain ways it resembled.

During the several days of their flight, the two boys had developed a technique of carefully edging around each other, of sliding in and out and neatly dodging each other's bodies. It looked almost like a dance or a studied gym drill.

They slid back now, sat down together on the pulled-down cot, and while Mike started the heater, Johnny took the last of their provisions from the wall locker. "We've just enough for a final meal before we have to concentrate on re-entry," he commented.

"Let's enjoy it while we can," said Mike. "The stress of re-entry should knock the wind out of us."

"Or anyway we can suppose so," laughed Johnny. "When you consider what we've been through already—around the world several times in the capsule, up in the X-15, and you aboard the Dyna-Soar—I guess the stress forces will be old stuff."

"Not this time," said Mike. "These will be different."

"Ah," was the quick retort, "you're not supposed to admit that. Surely you realize that we're actually in free fall right now. This food is floating in mid-air before us and I'm not really sitting on this couch but hanging over it."

"True," said Mike, "I almost forget. The gravity in here feels so realistic I almost believed for a minute that I had my full weight."

He took out a tube of squashed and liquefied vegetables, held it to his mouth and squeezed the contents. "Like eating toothpaste flavored with spinach," he said.

The young Cheyenne, his companion, glanced at him and laughed. "Since we're in free fall, you better not be so particular. If that were a solid veg-

etable, say spinach in a dish, it might be all over the room by now."

They ate in silence for a moment, conscious of the curious condition of the little cabin. In space, they knew, they could have no sense of direction. Somewhere under them—or to one side—there should be huge rocket chambers and great tanks, still partially filled with enough volatile fuels to blast away the velocities of outer space and bring them down into a precalculated and carefully patterned orbit around the Earth. This orbit would in turn narrow in until they could land the craft themselves safely back in the United States.

There was a buzz and a flash of light on the board. Mike eased himself from his place and walked carefully over to the board again. He guided himself with his hands, keeping contact with the vessel at all times to prevent any loss of orientation under conditions of free fall, or zero gravity.

He got to the board, held on to the back of the pilot's chair, and reaching over, switched on the communicator. There was a hum and a voice came on over the speaker, a voice from the home base, the Earth control for their expedition.

"Your gripe has been noted, boys," said the

voice. "We heard you. Next time we'll get you some pinups of the moon and Mars and the rest. You can look at them when going out into space."

"I hope we won't need to," said Mike, chuckling. "Doctor, the next time I go into space I want to have a clear view and the Earth in sight moving beneath me. I've seen it before, but I can't get enough of it. There's nothing like the sight of old Mother Earth revolving beneath you in the blackness of the stellar sky. It's a glory you can't get tired of. It would do a lot to have some of that on display."

There was a moment's hesitation and the sound of a whispered consultation somewhere at the Earth speaker's base. Then the voice of Merlin Van Ness, director of Space Task Group Q, came on once more. "We'll see that you get some of that view soon enough," it said. "You have only a little more time before getting down to the landing routine. Are you both in shape?"

"Feeling fine," said Mike, "considering we've been cooped up in this tiny cabin for days with nothing but that control board to play with and each other to look at."

"A bang-up fight between us would have been a relief," put in Johnny from the cabin behind

him. "There was a time a couple days ago when I was ready to let him have it with a tomahawk, if I'd had a tomahawk that is."

"We noted that," said Van Ness on the communicator. "It was due to the oxygen mixture. Our registers here showed that it was a little higher than planned. We were able to cut it back to normal, space normal that is, before you boys got too hotheaded. But that could cause trouble in some future flight."

"Nearly did this time," said Mike. "I realized afterward that I was feeling kind of excited for no good reason."

"Still," said Van Ness, "you two have come off remarkably well. I might say that if the next few hours go off OK, and I don't see why they shouldn't, that you can be teamed up again shortly."

"Whee!" said Mike, then paused, with a wide happy grin. "If that means what I think it means, bring on your earth orbit. I'm anxious to see you in person."

"Don't go off again. Get ready for business. We must chart this flight completely before we can evaluate whether we are ready for the next step."

Van Ness signed off. The two space fliers

finished their meal in silence, lost in thoughts of the conquest of space to come.

In a short time they were both strapped again into their seats, having first fastened their space helmets which they had not worn since their original take-off. Their high-altitude compression suits, which had been loosened and allowed to be slack, were tight once more and plugged into the cabin's pressure system. The boys were again two fully prepared astronauts ready for the most dangerous moment of their flight—the return to the Earth's atmosphere.

For the next three hours they had their hands full. As gauge after gauge lit up, they worked to keep the ship under control. First they had to slow her down enough to get into orbit, using the lateral rocket controls to move her into the correct speed and attitude, according to their chart pattern. Then they had to ease her down further, watching the rising temperature as the friction of the quickly thickening atmosphere would heat up the shell of their two-man cabin.

Both astronauts were experienced, but each was experienced only in operating alone. Now they were learning to work together as pilot and co-pilot on a spaceship, learning to work as a team, to save duplication of effort, to think not

independently but as part of a system, saving energy and time.

The pattern showed them nearly down, showed the temperature gauge coming back to normal, showed their ship now parachuting over the wide waters which would be their landing post.

Both young men were breathing easier; the worst was over. "One minute," said Mike softly. Both worked on. Then suddenly the pattern was ended. The cabin was down. The flight was over.

Both jumped up with double shouts of glee. They thrust open their helmets and unstrapped their seats. But even before they would get up, a round door in the end of the cabin slid open with a hiss of air, and a man with a short spade-shaped beard poked his head through.

It was the face of Dr. Van Ness, his twinkling blue eyes catching the two as they were getting up. "Nicely done, boys," he said, then stopped and took a sniff.

"For a ten-day's flight, the air in here is pretty good at that," he said. "Coming out? The doctors want a look at you."

"Aw," said Mike coming to the round door and stepping through it, "all I want is a decent steak and a chance to see some sunlight and some of that Texas open air."

He stepped down the three metal steps, followed by Johnny Bluehawk. Several men in laboratory smocks standing around the well-lit basement smiled at them, and a couple made movements of applause.

Around them there was no wide stretch of blue Caribbean Sea. There was no welcoming Navy helicopter to boost them out of the ocean. There would be no ship waiting nearby, with sailors lining the rail to see the men from space.

Instead only the gray-painted regions of the basement of an Air Force hospital greeted their eyes. No sky overhead but a bank of neon lights. And behind them, no pitted and burned shell of a space vehicle's capsule. Only the gleaming cool gray walls of a large metal tank, and a bank of dials, viewplates, and controls along the panels next to it.

For this was the space flight simulation tank of the Aerospace Hospital at Brooks Air Force Base in Texas, and this particular flight to the moon and around it had taken place entirely within its unmoving solidly bolted-down walls.

CHAPTER 2

GROUNDED

AFTER three hours of being checked by doctors, the two boys felt as if they would rather have been back in the sealed chamber. The pummeling, probing, blood-testing, and other routines of the space doctors proved more exhausting than the long carefully controlled ten days in "space." But that was the price of space flight. The whole test was to determine what, if any, effects their isolation had had.

They were quite sure there would be none. This was nothing new to them. As astronauts they had undergone these tests before. "Sometimes I wonder if I couldn't develop a little sneeze or a snuffle or something," Mike remarked as the two finally emerged from the main entrance of the four-story building that housed the main space medicine laboratories. "I think it would make them happier. They could study it

and write it up and give themselves a lot to do.”

“Sure,” said Johnny, “and that would ground you for who knows how long. You have a date with Mars, so you’d better not play games, even sniffles.”

Mike laughed. “Fortunately, so far I’ve managed to score a zero for sicknesses. The real space flight might be something else.”

A trim blue Air Force car was waiting for them and when they climbed in they found that Dr. Van Ness was already installed and waiting. “How about a bite of real hard-on-the-teeth Earth food now, fellows?” asked the director of their secret space group. “And maybe a talk about what’s next?”

The two assented and the car sped on between the neatly kept lawns of the base, one of the main training centers for the medical section of the Air Force, a base already famed for its pioneering work in the study of how to keep a man healthy while traveling between the planets.

They had finished their steaks and were about to dig into heaped plates of ice cream when Mike popped the question that the boys always had on their minds. “When are we going up into space again, Doc? Is the Dyna-Soar ready for a

real test now? I didn't get much of a chance to give it a full workout last time."

Mike was referring to his recent experience when he took up the untested X-20, the Dyna-Soar rocket-launched space glider, in answer to an emergency situation that had befallen a fellow astronaut. Though the experimental craft had functioned satisfactorily, this would hardly count as the full test required before it could be put into service.

The astronauts of Space Task Group Q were a very special and a very secret lot. All volunteers picked by careful examination, they were young pilots of the Air Force, the Navy, and the Marines. Six of them remained of the original group, and each had gone into space in capsule and rocket plane. Still, the world had not learned about them.

For it was their special role to dare without fame, to take risks more experienced men would not be allowed. They were the crash program space fliers that would attempt to put Uncle Sam onto the moon and on the planets ahead of all other national competitors—and to do this, they had each sworn secrecy about their exploits.

Captain Michael Alfred Robert Samson, USAF, to give him his official name, was far better known among his friends as Mike Mars. His initials added

up to MARS and he'd earned the nickname in his school days. It was a good name and he liked it. But for him it was also a constant reminder of his one great ambition: to land on Mars. Though the road to space was long and hard, he kept his eyes constantly on that goal.

Johnny Bluehawk, spooning up a heap of vanilla ice cream, also held the rank of captain in the Air Force. To look at him gobbling his desert, you would not at first have associated him with the bold, hawk-faced warriors of the Western plains of a century past, the fierce Cheyennes. But Johnny was a son of the Cheyenne tribe, a true American, and a crack pilot in his country's service.

Dr. Van Ness put down the coffee he'd been about to sip at Mike's query. He shook his head. "I'm afraid not. I suggested it for you, because of your experience, but the word is no. They don't want you to take up the Dyna-Soar. Orin McMahan and Hart Williams are being put on that job for the early testing. For the time being, you're grounded."

"What!" gasped Mike. "Grounded? You mean—they did find something wrong at the check-out?"

"Me too?" questioned Johnny, hastily swallow-

ing his mouthful of frozen cream and gulping on its coldness.

The space expert nodded. "Both of you. Grounded. They didn't find anything wrong with you. But we have other work that'll keep you on the ground for a while."

Both chaps looked at each other in puzzlement. "How are we going to get up into space with this kind of delay?" Mike said softly, not exactly directing his remarks to anybody.

Van Ness smiled briefly. "We've got some studying for you two. You're valuable, both of you. So you're going to be working at a new project for a few weeks, seeing how you can fit into it. Meanwhile you stay out of space."

Mike and Johnny exchanged glances. Quietly they resumed their meal. They knew that when Dr. Van Ness wanted to tell them, he would. And it was just as well for at that moment there was a call from across the dining hall.

"Dad! Mike! Johnny! We knew we'd find you here!"

The voice was the excited high pitch of a young girl, and around the large hall many eyes looked up at the unexpected interruption. But the girl making her way swiftly across the room,

followed by a tall older man in colonel's blues, was unconscious of their looks.



Dr. Van Ness and Vivian

Pony-tail bouncing, her blue eyes sparkling, Vivian Van Ness, made her way to where her father was sitting and planted a kiss on his face. She seemed about to do likewise to the two astronauts and both of them ducked back swiftly. She laughed. "Sillies," she said. "Colonel Drummond flew me here when he learned your test in that

dull old chamber was over. I want to go to Mexico with you, Dad; take me, please!”

Dr. Van Ness seemed a bit confused. He had coped with many a difficult aviation problem in his years of work in that field, but he never quite knew how to cope with his bumptious young daughter. She broke all the rules of his tightly secret setup and nothing could hold her back.

“Mexico?” said Mike, catching the fact that she’d let out something. “Who’s going to Mexico and why?”

“Oh, he didn’t tell you?” bubbled Vivian, pulling a chair over from another table. “Dad’s going to Guaymas to visit the tracking station there, and I want him to take me along.”

“Are we going along too?” asked Johnny Bluehawk politely, wondering to himself just why it would be necessary for them to pay a routine visit to the tracking station, which probably didn’t differ very much from the others in the NASA circuit around the world.

Dr. Van Ness shook his head. “No, you’ll be going with Colonel Drummond, if we can ever get this child of mine to keep quiet. I guess I’ll have to take her down to Guaymas with me and let her have her fill of hot tamales, chili beans,

sombreros, and guitar players. I have business with the tracking station there. Colonel, you want to tell them what's on deck?"

Drummond cast the doctor an amused look out of his narrow weather-beaten eyes. "The word is Gemini," he said and stopped to see if they understood.

There was a moment's silence. "Gemini's a constellation in the sky," said Vivian brightly. "It means the twins. Are they going to fly there?" she asked in a rising voice.

Mike laughed. "Even I don't expect to get that far," he said. "You must mean Project Gemini, sir?"

The colonel, who represented the Air Force in the three-man directorate of Space Task Group Q, nodded assent. "That's it. Gemini is ready for testing. The two-man space capsule is the next step in the race to the moon. And you're the two astronauts we've picked to man it."

"And that's why you're grounded," added Van Ness quickly. "You're going to learn to take it apart and put it together again, and you're going to know that capsule by heart before you get off the ground."

"Then . . ." said Mike slowly.

“Then”—Van Ness hesitated dramatically,—
“then, you’ll study some more!”

“Only . . . up there!” Mike finished the
thought.

CHAPTER 3

THE SILENT SATELLITE

"WE ARE stepping up our drive to reach the moon. Our publicly announced Apollo program is scheduled for still a bit ahead. But we are going to try greater risks in order to win this important space race. You in Space Task Group Q are the men for it."

Colonel Drummond was speaking softly but earnestly. The two young astronauts nodded. Vivian looked quickly at them and flashed a glance at her father. Then in a subdued voice she said, "That's because they are secret astronauts and if they get lost, nobody will know of it."

The grim thought had occurred to them all, but it took Vivian to put it into words. Mike looked at her. "We understood that when we volunteered for this work," he said. "We know we are not going to get the glory and the rewards—but we are doing it for our country and

for the world's honor. Better we take the wilder risks in quiet."

Johnny Bluehawk nodded in agreement. Vivian looked at them and looked at her father. "Is the Gemini the moon rocket flight?" she asked.

He shook his head. "No; but it is the step just before the moon task itself. It is the next rung on the ladder and it is up to the boys to climb it. We have some plans on the drawing boards at NASA and in the Pentagon that may enable us to shortcut the main Apollo program a bit. This Gemini rush operation is part of those plans."

Drummond took over for a moment. "There's a target date. You will have about five weeks of heavy study and then—up you go. The two of you. In Gemini. I needn't tell you that's a short-order work schedule for a project as big as this. You can back out now, if you want to, and we won't hold it against you. The thing is not fully completed to the satisfaction of NASA."

As one, Johnny and Mike shook their heads. "We are ready, sir," said Mike. "We can't wait," added Johnny. "Even five weeks is too long."

There was a light ripple of relieved laughter about the table. Van Ness pushed his chair back. "Then that's settled. Tomorrow you two go on to the McDonnell plant at St. Louis to begin

your mastery of the bigger capsule. The colonel will go with you. And Vivian and I will go on our way down to Guaymas. Now, the rest of the night is yours. There are some good movies downtown in San Antonio. Why don't you three young ones go on down there in a staff car and take one in?"

Colonel Drummond, getting up, said, "That's practically an order. Too much work and no play, you know . . ."

"Don't have to say so twice, sir," said Mike. "After being cooped up in that make-believe moon flight, a flicker and a malted will be good."

Vivian jumped to her feet. "Let's go. I've got so much to talk to you about."

Mike cast a pained look at Johnny. Well, they'd have to grin and bear it. Maybe she'd shut up once they were in the movies.

Off they went and the night was successful as those things go. The next day, the group drove out together to Kelly Air Force Base and there they parted company. Van Ness and his daughter took a plane west to an Arizona base where they would pick up a car and drive south to the border and the distant satellite relay observation station. Drummond and the two Q Group astronauts boarded a plane headed north.

Space flight is the great historical event of the twentieth century. It is an adventure for all humanity that is even greater than the famous voyage of Columbus. Nobody knows what lies beyond the borders of the Earth. For even though we have explored every section of this Earth's crust, looked over every mountain and beyond every sea, the sea of space that stretches to the visible ends of the universe is such an ocean as can never be explored completely in a thousand thousand years.

It is given to us to be the very first to break in upon the unknown shores, to sail the unknown deadly waters of space in frail little shells, in capsules and in satellites, in rocket ships and in nuclear spacecraft, and someday to plant our feet on all the worlds that lie around us.

For us not one New World but an endless number. This was the dream that gripped Mike Mars. It is the dream that grips all the young people of our wonderful days; it is the dream that will become reality in the lifetimes of most of these people, of whom Johnny and Mike were just two examples, more fortunate in that, by their diligence and study and work and healthy living, they were chosen to be among the brave

group that first must break into the vastness that is outer space.

But in outer space, who knows what awaits us? There are strange things in space, strange things moving through the currents around the Sun, strange things circling the world, most of our own making, but perhaps some that are not.

From many parts of the Earth a watch is being kept on the visitors to the Earth. Eyes probe, great radar webs slowly span the sky and record each object that breaks into view. Mighty nations—the United States, Great Britain, and Canada on one side, the Soviet Union on another—all are scanning the skies night and day, and noting each strange object, moon, meteor, or rocket that crosses the horizon.

Far up along the northern borders of North America stretches a chain of such scanning stations. Spotted around the continent other stations watch continually, some near great cities, others on isolated desert or mountain areas. The information they gather is channeled by radio and wire to central headquarters at various places, studied, and analyzed. Gradually more and more is known about what is going on in space.

The satellites mankind has sent up are charted. So many American, so many Soviet, so many

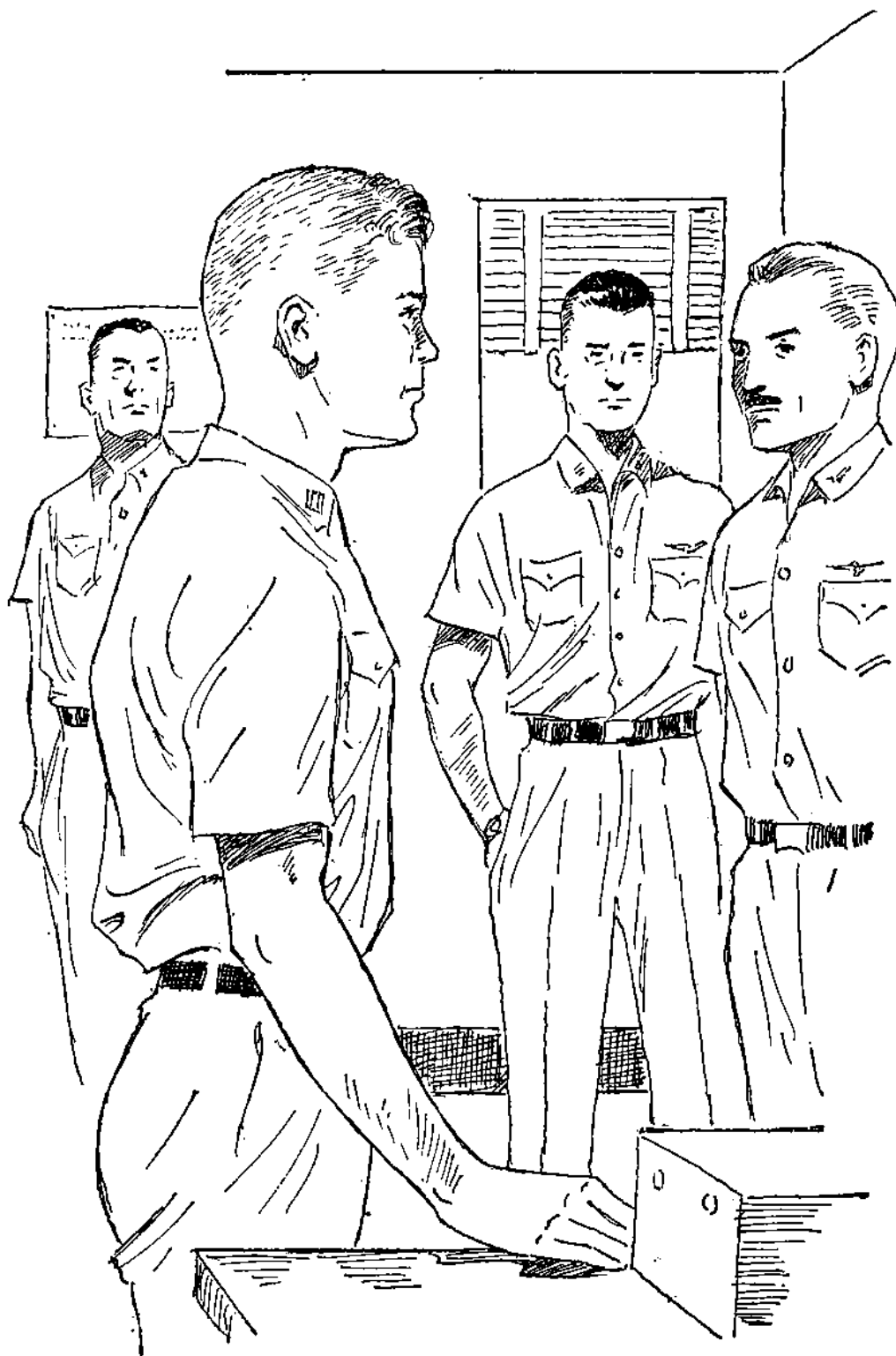
British; some are for weather observations, some are scientific research capsules, some are television relay satellites, some . . . some are what? Secrets of defense.

At the mysterious United States Air Base on the edge of the great Greenland glacier known as Thule, beyond the farthest northern land the ancient myth-makers could imagine, one such radar observation station clocked in a new spot in the sky.

Automatically, attention was paid to it, its course plotted, its nature studied. Men of the constant alert system went to work at once. Was it something on a ballistic course fired from Siberia and destined to land in America?

No. It was on an orbital trajectory. It was in orbit. It would circle the Earth continuously, north to south, south to north, regularly every hour and a half. It was a hundred and twenty miles from the surface of the Earth, at its closest; it was two hundred and thirty miles at its farthest. A remarkably good orbit, the kind that spoke of good launching facilities, good planning.

The information was hurled back to the United States, clocked in within minutes at several great centers, at the North American Defense headquarters in Colorado Springs, Colorado, at the



Grave news at McDonnell

Goddard headquarters of the NASA system in Greenbelt, Maryland, and in the offices at Cape Canaveral and Vandenberg.

In England the Jodrell Bank Radio Observatory reported in on the satellite by the next day. Its course corresponded with the original observation.

The satellite was not American. We know every rocket we fire, and NASA knew it was not one of ours. No American field had lofted that satellite; no American rocket debris followed it through space. Its launching had not been observed, but all the space scientists agreed it must be Russian.

A day went by. In the halls of the Pentagon, in the corridors of NASA headquarters, at Goddard and Langley and the Manned Space Flight Center in Houston men asked what word had been heard from Russia.

But the Russians said nothing, announced nothing.

"Not unusual," was the comment Colonel Drummond made to a couple of the engineers at the McDonnell plant the morning of the second day of that satellite. "The Russians never announce their failures or their efforts until they are successful. Of course it must be Russian. Doubt-

less they'll tell us what it is when they get ready."

"It's a big one," said one of the engineers. "According to the bulletin I saw, it's as heavy as the Russian space capsules have been."

"Any signals from it?" asked Drummond. "Haven't followed the story too closely."

"So far," said the engineer, "they haven't detected any signals at all. If it had a radio, it must have failed on take-off."

"Maybe that's why the Russians won't talk about it," said the other engineer. "It's a failure. They are out of touch with it."

At this moment, two overalled figures came into the little coffee room where the three were sitting and talking. Mike Mars and Johnny Bluehawk were taking a brief morning break from their work over the big mockup of the new capsule on the work floor just outside. Mike caught the last few words.

"Heard the latest?" he said. "I got it from one of the technicians. The Russians just issued a statement saying it isn't one of theirs at all. They deny sending it."

CHAPTER 4

FOUR COME TO GUAYMAS

"IMPOSSIBLE!" said Drummond after a moment's hesitation. "Just impossible. If it isn't ours, and we know what we are doing and what our friends are doing, it has to be Russian!"

Mike and Johnny sat down. "Our system of radar observation should show definitely where the satellite was launched," said Mike. "We have a good ring of observers around the roof of the world. Any satellite has to have a point or origin which can be traced."

Johnny looked at him. "If we catch it in time. But once a satellite is in orbit, we can only guess roughly where it might have come from."

Drummond nodded. "I believe we have already shown that this one seemed to have first come to notice on a polar orbit that crossed eastern Siberia. We haven't previously known that

the Soviets had any rocket launchers there, but that doesn't mean they don't."

"And yet," Mike put in slowly, "does that still mean that it had to come from Earth? Suppose a spacecraft came in from outer space somewhere? Suppose it loosed an observation satellite over the pole and put it into orbit. Then the Russians would be right saying it wasn't theirs, and it also wouldn't be ours."

"So since we don't trust each other, it's a grand opportunity for something from outer space, not from Earth at all, to put a spy eye on us. We'd each believe the other great power on Earth put it up!" Johnny Bluehawk's dark eyes were shining strangely.

There was silence as they all digested that thought. One of the technicians shuddered slightly. Drummond pursed his lips, narrowed his eyes. Then he slowly shook his head. "It could be, but I still think it came from Earth."

Mike asked, "Don't you believe there is intelligent life somewhere else in the universe? Most scientists accept the probability that Earth is not the only inhabited planet in the whole of space."

The colonel nodded. "That may be, but, if I understand the astronomers, it looks as if we very well may be the only inhabited planet in this

particular solar system. Mars and Venus could have life—but conditions so far haven't appeared very favorable to any existing high level of life on either planet. Mercury is too hot and airless. All the other planets farther out from the Sun than Mars are too cold and too poisonous in atmosphere to allow for life."

"So," said Johnny, "that only leaves thousands of possibly inhabited planets among the millions and millions of suns beyond the solar system."

The colonel shrugged. "This is mere fantasy. Why should they come at all, and if so, why now, and why should they show themselves? I say it's a Russian satellite."

"It may be," said Mike, "but, gee, wouldn't it be thrilling if it really were from outer space?"

"Thrilling?" asked Drummond. "It'd be something to really get scared about. It'd be a serious matter—another power for our country to worry about. No, we have enough trouble with the competition right here on old Terra."

"How are we going to find out what the truth is about that new satellite?" asked Johnny.

"Oh," said the colonel, "let's leave that to the Pentagon for the time being. Our problem here

and now is to get to know the two-man capsule. So back to work you go."

The two young astronauts got up, and went back onto the floor of the heavily guarded and top secret structure in which the Gemini capsules were being made. It was a long low flat building on the extensive grounds of the McDonnell plant outside the city of St. Louis. There were five of the great top-shaped capsules lining the long floor, and workmen in white and gray smocks and identity badges clustering around each. Mike and Johnny went back to the one they were studying, and their instructor, a foreman of the plant, continued his work of explaining each section and panel and wiring layout.

Essentially the Gemini capsule was identical in structure to the Mercury capsule with which both astronauts were entirely familiar, having ridden that first type of pioneer American spacecraft into space several times in their short exciting careers. But the Gemini was bigger, designed to carry two men side by side, in twin contour seats, designed to allow both to act as pilot and co-pilot, or for one to direct while the other engaged in other experiments and tasks.

It was designed to house two men for a period of at least a week in space. It was designed

not merely to circle the Earth endlessly, but to be able to maneuver itself sufficiently to engage in the delicate task of meeting another object in orbit and connecting up with that other object—the task described scientifically as rendezvous and docking.

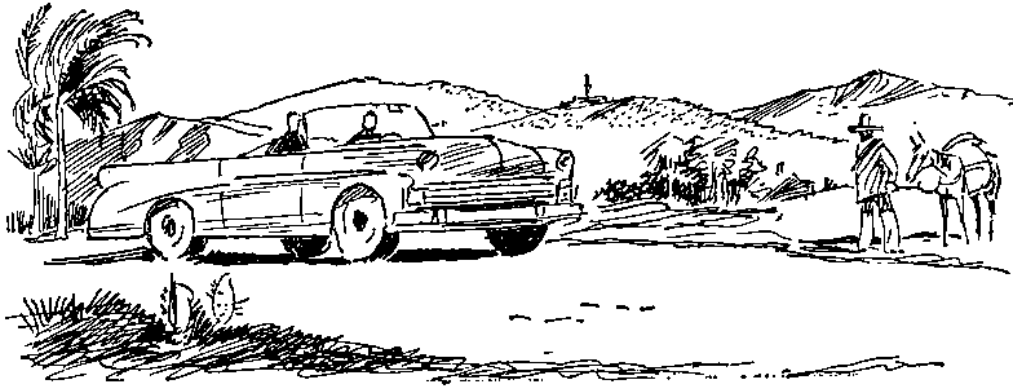
This task was the necessary step between simple orbiting and setting up the means by which greater space vehicles could be constructed, such as space stations and facilities for launching outer space explorations to the moon and eventually to Venus and Mars.

Studying the Gemini capsule, therefore, was not too hard a task for men who were already fully familiar with its one-man predecessor. The problem of building a capsule capable of holding two men was not simply a matter of enlarging the first ship. The fact of stress on the shell had to be considered. The larger the shell, the greater the risk of breakage, of loss of airtightness, of loss of heat, of loss of resistance to the heat of re-entry. It was a problem of structural engineering; not just to double all the figures, but to recalculate them in such a way as to make the new bigger craft every bit as safe, every bit as strong as the original Mercury vehicle.

The larger the body the more difficult this prob-

lem becomes. That was the task on which the engineers and designers at McDonnell had been engaged for several years and which had now reached its completion with the big Gemini capsules on the floor, ready for their first big trials.

Five weeks was a short time to master this new craft. But five weeks it had to be.



While Mike and Johnny were at work in St. Louis, two cars were approaching the town of Guaymas in Mexico. Both cars came over roads through the hot barren lands of the Mexican province of Sonora just below Arizona. Clouds of dust rolled from behind each car, obscuring briefly the yellow-gray landscape on each side of the road. A few scrubby plants broke the monotony of the desert here and there, and every once in a while there might be a low adobe hut in a patch of green tilled land, with perhaps a brief glimpse

of a donkey or a farmer with a white straw hat and bare arms working in the fields, or a woman carrying water from a well.

Overhead the same blue, hot sky shone down. Far off the town of Guaymas appeared and at the same time the cool blue shoreline of the Gulf of California, upon which the town looked down. Beyond the town rose a narrow road leading to the mountains, the barren gray heights inland from the gulf. High up on the top of one of those mountains stood the modern building of the NASA observatory with its radar towers like metal umbrellas stretched out to the sky, listening, watching. Its rigging of wires was set to hear the passage of the man-made stars that now dotted the world's heavens.

Though two cars were approaching Guaymas, they did not see each other. They came on two separate roads, one from the north, the other rolling up from the south, from Mexico City.

In the car from the north, Vivian sat next to the driver. She was looking forward to the town, for she had begun to tire of the dull scenery. She counted the few peons' huts and exclaimed over the difficulty they must have raising good crops on the barren soil.

Dr. Van Ness had been in Mexico before, many

times in his life, and this was not anything new to him. Nevertheless he patiently answered his daughter's questions about the land below the border, while idly his mind turned over the question of the mystery satellite.

His business with the Guaymas station did not directly concern that new mystery of the skies. Rather he was engaged in some confidential directions concerning several of the secret projects of Space Task Group Q. But he supposed that perhaps he might get a glimpse of the track of the new satellite while he was there, and possibly learn something more about it.

Even as the two Van Nesses, father and daughter, came in sight of the town, the other car, coming from the south, saw its first glimpses of the Gulf as it came over a narrow mountain pass and started down to Guaymas on the other side.

There were two people in this car too. One a quiet dark-haired Mexican chauffeur, who said nothing unless he was spoken to. The other, smiling quietly to himself, wore a gray business suit, a little old-fashioned in design and quite unusual for Mexico. He was a young man, with a rather devil-may-care smile in his pale blue eyes. Occa-

sionally he stroked his little light brown mustache as he looked down on the approaching town.

“This is Guaymas, eh?” he said.

“Yes, Captain Kosmodin,” said his driver.

“This is the town at last.”

Arkady Kosmodin, captain in the Soviet Air Force, a cosmonaut on the Soviet space team, looked ahead eagerly. “I hope this trip will not be in vain, this time. If all goes well, it won’t be.” He laughed to himself.

CHAPTER 5
BLABBERMOUTH

HANGING around an observation station, even one as thrilling as the one in Guaymas whose task was to record and observe the passage of the many man-made moons, can rapidly become very tiring if you are not actually engaged in the work there. Thus it did not take long for Vivian to become bored.

By the second day in the small town, she was quite ready to let her father go unaccompanied up to the lonely station while she stayed in the colorful town and wandered about the marketplace and the fishermen's docks and saw what sights could be seen.

"You're probably right," said Merlin Van Ness to his daughter. "I'll be going over the tapes on our various Quicksilver flights and there'll be really nothing for you to do. Then, again, the boys in the station are going to roll out some of their

tape records of the new mystery satellite that's been detected. It'll be time-consuming, but monotonous."

So he left her on her own that morning, and she went out and strolled around the town. A Mexican marketplace can be quite colorful and fascinating, and since Vivian had studied Spanish, she was able to make a little more of the bargaining and talk of the natives than another would.

Nevertheless it became a bit tiring as the morning drew on and the heat of a Mexican midday began to set in. When she returned to the hotel that fronted the public square, she was ready for a rest and something cool to drink. She sat in a chair at a small table on the terrace drinking a glass of lemonade when Arkady Kosmodin came by.

Arkady had put up at the same hotel, not surprising since it was the most prominent in the town, and had spent the previous day on certain work of his own. With the assistance of his chauffeur, he had struck up an acquaintance with one of the NASA men working at the observatory the night before, and without ever revealing his own true identity, he intended to ask a few "innocent" questions concerning certain observations.

Now as he came up to Vivian, he was holding



Arkady Kosmodin

a copy of the local newspaper in his hand and looking apologetic. "Excuse me, miss," he said, stopping and acting as if he were a bit shy, "but do you read any Spanish? If so, could you perhaps tell me what this little story is on the front page of the paper?"

Vivian flashed a look at him. She was only a teenager, but at once she saw that the man was not a native, and from his slight accent,

thought him to be a European. He was good-looking, too, she thought, with that cute little mustache.

She was rather happy to have a chance to show off her learning. "I studied Spanish," she replied, and took the paper from his hand.

Arkady sat down at her table, still a bit apologetically, and thanked her. She read the item aloud, a little slowly and haltingly. It was a simple story about the new unknown space satellite and said that the American scientists had not been able to identify it.

"Thank you very much," said Arkady. "That is very strange, don't you think? Do you suppose they could find out what it was up at the American place on the mountain? I was told they were part of your system for space flight."

Vivian assumed a knowing look. "I don't know, but I bet they could tell a lot about it. Besides, it must be Russian. What else could it be?"

Arkady shrugged, told her it was a mystery to him, too, and maybe the wonderful men at NASA could find out. He was quite gracious and charming in the way a European often is in talking to young girls. He was careful to flatter her. In no time at all, Vivian was chattering away about her-

self and her father, and the work he was doing in space.

Now it must not be supposed that Vivian was entirely a foolish girl, nor that she did not know when to keep secrets. She did not tell anything that was not public knowledge, but she did like the fact that she herself, as the daughter of the chief scientist of one of the projects, knew so much. So she chattered away, and Arkady, pretending an ignorance he did not have, drew her out, while an hour passed pleasantly on the terrace of the hotel.

He was an attentive listener and nothing delights a person as much as being heard. So Vivian found herself telling more and more about the way her father was involved and the men she had known who were working in space flight. She was familiar with Cape Canaveral, she had seen many big rocket shots, she had visited the places where the astronauts had trained, and so she found herself being drawn by Arkady's clever questioning into revealing a greater knowledge of things than a young girl had any right to know.

Arkady invited her to lunch and she accepted, and after that he escorted her around the town again, pointing out things for her attention, and keeping her chatting.



Now one of the big secrets of spies is the trick of simply keeping a person talking. This is why in wartime persons are always advised not to talk to strangers, and in peacetime people working at defense plants and testing grounds are urged not to talk of their work outside the grounds. But Vivian did not think of this, and truly she would never have knowingly revealed any secrets. She did not always know, however, what was important and what was not.

The fact that her father was even in Guaymas could have been a matter of importance, for the fact that the whole Space Task Group Q was a top secret operation was known to her. Still, she did not guess that the charming stranger with the short cropped light brown hair and the sweet smile was anything but a curious tourist.

Arkady therefore worked the conversation around to the future American plans for space conquest and then casually expressed wonder about when the Americans would get to the next phase of operation, the two-man capsule.

Without thinking, for by that time she had been talking freely, Vivian said, "Oh, I think quite soon now. I know they're almost ready. In fact—some friends of mine are already studying it."

"Oh," said the Soviet cosmonaut. "You must

mean that fellow, Mike, you mentioned. The one you say saved your life once on the beach at Canaveral. Is it Mike you mean?"

"Why . . ." Vivian hesitated, but then he knew so much, what harm could it do? "Mike's one of the fellows. He does a lot of study, so he's looking at this Gemini capsule now. He's so brave. I really could get a pash on him if he'd only pay some attention to me, but you know all he can think of is his rockets and his dreams."

"I didn't know," said Arkady, with a blank look on his face to cover up his secret joy at the news. Actually Arkady knew Mike perfectly well. He had met Mike in the days of Mike's South Pole mission, when the two had clashed over an effort by the Russian to block Mike's Blue Scout operations.

Soviet intelligence had already put together many little bits of information on Mike Mars and his friends and had already established the suspicion that he represented a secret astronautic operation on the part of the United States. Mike and his work were now a part of cosmonaut Kosmodin's responsibility.

The kind of information he had just learned—that Mike was studying the Gemini capsule—was exactly what he wanted to know. For now he was sure that it meant a very early flight for the

Gemini. He knew now what the next phase of the Q program had to be.

They chatted on, while Arkady led the girl back to the hotel. He left her there shortly before her father's return, and promised to call for her again the next day. By the time Dr. Van Ness rejoined Vivian, Arkady was entirely out of sight.

Though Vivian told her father of the interesting European she had met, she found to her astonishment that the whole time she had failed to learn the man's name and to establish his nationality. She thought he might be Swedish or perhaps Dutch.

As for Dr. Van Ness, he was more interested in telling her his own findings than in paying attention to the way she had spent the day. "The reports in from the whole network establish it as a fair certainty that the mystery satellite is from northern Asia. It must be Soviet.

"I have a copy of the last recorded passages of this satellite over this station's region," he said, taking out the charts and showing them briefly. "I want to study these for myself tonight."

Vivian was tired from the day's walk and paid that little heed. Neither of them knew that at that same time, Arkady Kosmodin, in another room of

the hotel, was poring over a duplicate of the same records he had just obtained. He nodded his head as he went over them. "Just what we want to know," he muttered in Russian. Then packing the charts in his valise, he left his room, went down to the lobby, checked out, called his chauffeur and was driven away.

Half an hour later, a small chartered plane flew out of the little Guaymas airport. After a two-hour flight, the plane's passenger left it at Mexico City's airport, and boarded a Cuban airliner waiting there.

As the Caribbean plane winged its way into the misty night air over the ancient city of the Aztecs, the Soviet cosmonaut, his precious valise between his legs where none could touch it, closed his eyes in an effort to catch a little sleep.

He had a long trip ahead of him, for he'd be transferring to yet another plane at Havana. After another dozen hours he'd be closeted with certain important officials in an office of the Kremlin in Moscow.

CHAPTER 6

STUDYING GEMINI

DR. VAN NESS never learned then of his daughter's carelessness in talking about things of space to a stranger. But the effect of her conversation with Kosmodin was to have its results as time passed. For time had to pass before the different plans of the two nations competing for space were ready for action.

Vivian and her father returned to Arizona the next day and shortly after that both flew back to Florida, she to school and he to the secret headquarters of the Quicksilver space group at his guarded estate, Skyhook, in central Florida.

The results of his studies of the Guaymas records, along with other opinions derived by space experts at the many United States check points around the world, were duly reported to the headquarters of NASA and to the USAF defense staff, where they were analyzed.

The problem of the mystery satellite orbiting the Earth steadily from north to south faded from the public eye. Soon the subject was dropped from the newspapers, though not the minds of the men responsible for America's defense. The question of what it was, where it had come from, what it was up there for, was always an open topic on someone's desk. It would be solved some way, somehow.

Meanwhile in St. Louis, the two young astronauts continued their work on the big Gemini capsule. "It's a thrilling thing," Mike said to Johnny one morning, after their third week. "I think I already know this by heart, and yet each time I go to work on it, I think that I may find some new detail that will save someone's life in the future."

"Likely our own," said Johnny. "It's a lot like the Mercury capsule, and still . . . not."

They went out on the floor, nodded to the men with whom they were working, and looked over the big top-shaped object. It resembled the Mercury capsule in shape, but was a foot wider at the base and proportionately bigger all around. A foot wider, making it seven feet in diameter, may not seem much, but when you deal with masses of that size, the extra foot virtually doubles the

weight. Loaded, the Gemini would weigh over three tons.

Inside, in spite of the fact that two astronauts would be seated within it side by side, it still managed to be a trifle roomier than the old one-man capsule because it had a different arrangement for its essential equipment.

In the Mercury capsule, the communication, environmental control system, and others had been packed tightly about the capsule in layers, and this had never made for easy repair or checking.

In the Gemini capsule, all these systems, so vital to the safety of the space fliers and the value of the space tests, were housed in two bays outside the sealed pressure section where the astronauts would ride, although still protected from the outer temperatures by the heat system. This arrangement would enable the Gemini capsule to be checked out for flight in just a few days, through outer doors, instead of the long, time-consuming checkout that the Mercury capsules always had to undergo.

"The Gemini is an operational spacecraft instead of an experimental one," said Mike, as he climbed into the capsule and worked his way into the left-hand seat.

Johnny climbed in after him, plumping down into the right-hand seat next to him. "That's an important thing to remember," he said. "It means that Uncle Sam is getting ready to go into space for real now."

"Yes," said Mike, testing out the various controls, which were attached to dummy equipment that would simulate real responses. "And it also means that we're probably going to get our flying orders very, very soon."

Johnny leaned forward, looked through the thick narrow window just in front of him. "And I can see somebody coming now who looks like news for us," he announced in a soft voice.

Mike looked out through his observation port. Crossing the floor of the workshop was one of the company messengers and he was heading for their capsule. Johnny leaned over, pushed a stud, and the cabin unsealed itself.

A workman opened the outer door, and the messenger stuck his head in. "Captains Samson and Bluehawk are wanted in the project director's office," he called out.

"Coming," sang out Mike, and the two boys slid out of their contour seats and made their way out of the Gemini and followed the messenger.

It was a call from Colonel Drummond. Mike

took it, and when he hung up, he turned. "Pack, Johnny. It's back to Skyhook tonight by special plane. Feel up to flying?"

"Love to," said Johnny. "We've been getting rusty around here."

An hour later the two appeared at the airfield near the plant, with their kits packed. A fast two-seater USAF jet plane was waiting for them, its engine tuned and ready, its ground crew set. As they started toward it, after having put on their flying outfits and checked out their altitude helmets, Johnny pointed to another corner of the airfield.

Mike followed his glance. A big transport plane was standing there, with its wide cargo belly yawning open. Being trundled carefully into it was a huge canvas-wrapped crate, strangely top-shaped.

"Recognize that shape?" Johnny said. Mike nodded, but said nothing. Undoubtedly it was a Gemini capsule being loaded onto the transport. Its destination . . . Cape Canaveral?

They took off.

Three hours later they were lunching at Skyhook. Around them was the greenery of the central Florida lake country. Colorful trees, many with Spanish moss, blocked the outside view, for Skyhook was well isolated from the main roads

and its guarded wire wall kept the curious out.

In the dining room of the old-fashioned southern house which was Dr. Van Ness's home and the main building at Skyhook they were eating with the bearded aviation pioneer and with Colonel Drummond.

"We're moving the Gemini shoot up a few weeks," said Van Ness. "We want to test a dummy three days from now at the Cape, and we want you two to be there and see it. There's been some change in orders from NASA and I'm not sure what it means, but at least we can get on with it. You think you understand the new craft?"

"Sure," said Mike. "We're ready."

Johnny was quiet a while. "Does this have anything to do with the unidentified satellite?" he asked finally.

Van Ness hesitated. "I don't think so. They are expecting an interesting and unusual development tomorrow. One of the Echo satellites, the giant balloon moonlets, in orbit now, is going to intersect the orbit of the mystery satellite. It should come almost right next to the mystery thing at a spot not too distant from the Point Arguello observation station. The men there are going to try to use the Echo at that moment to

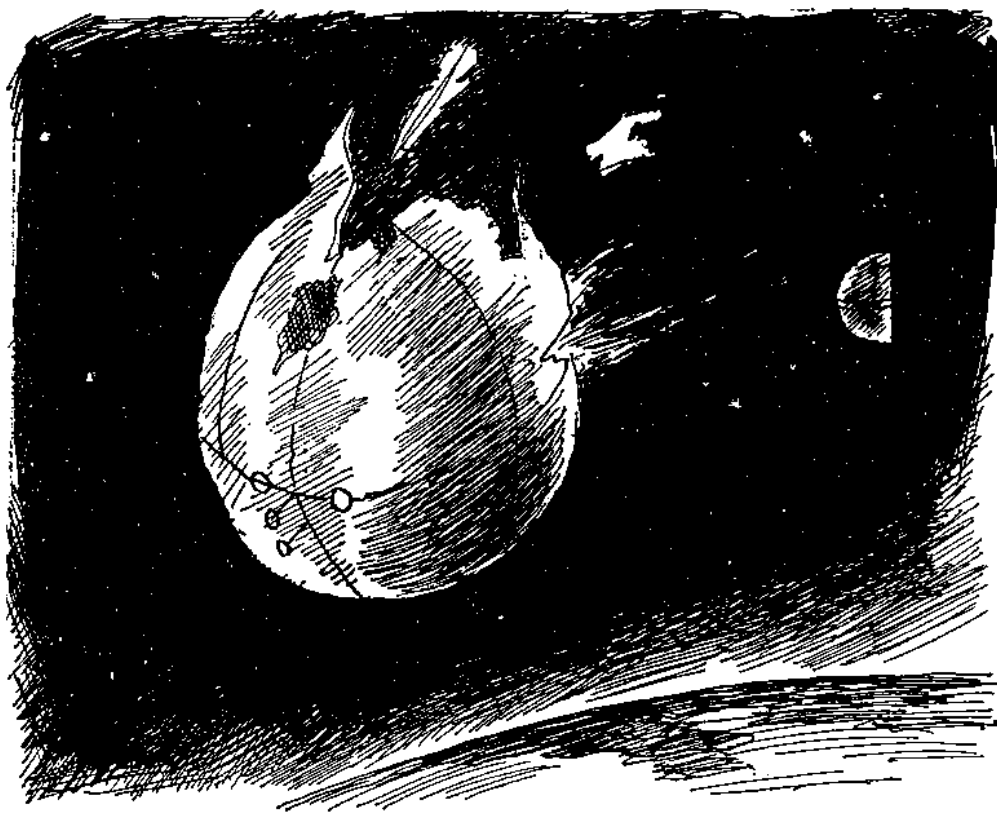
catch any radio beams or transmissions going on that we haven't been able to detect."

"That's a real rarity in orbits," said Mike, "and it ought also to be able to tell us something about the weight and mass of the mystery object by the way it affects the orbit of the Echo."

"The Point Arguello people think so too," said Van Ness. "They are awaiting the conjunction of orbits with great attention."

"How is it that they don't use the facet-eye camera at Holloman to study it?" asked Mike.

"The satellite's orbit is not quite right for that,

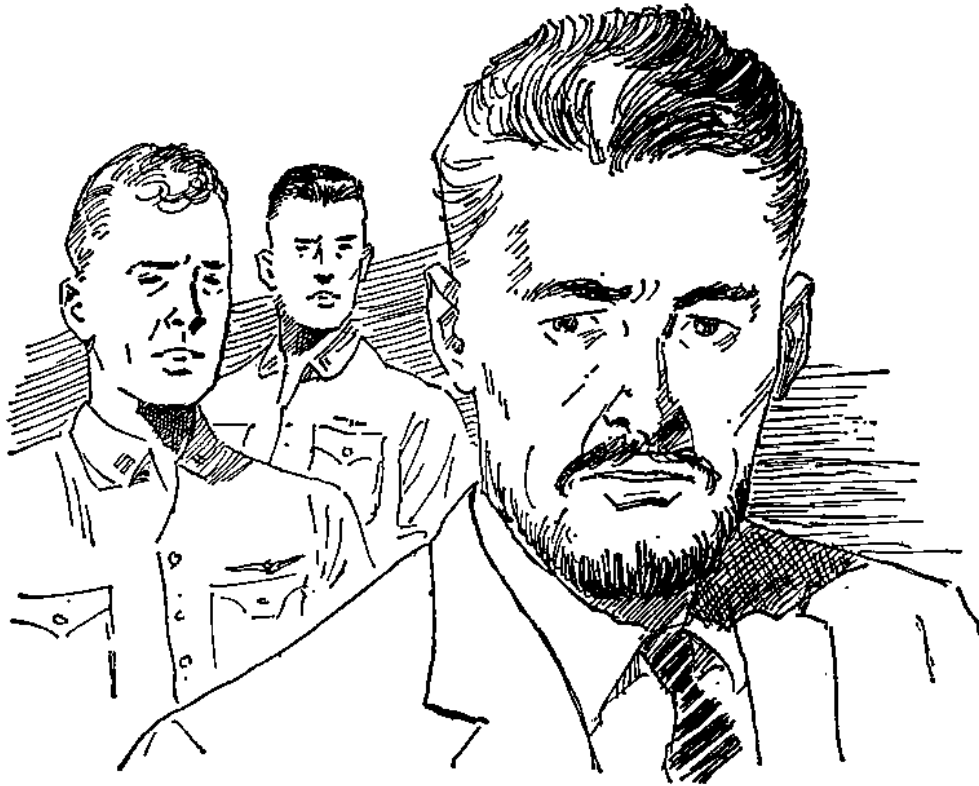


and they have taken some pictures which do not seem to show anything revealing. They need better and clearer shots, which can only be taken from space."

After lunch, they settled down to a review of the work ahead.

The next day went by in a burst of study and further research. About four in the afternoon, Dr. Van Ness called them into his office. He had a very grave face.

"Boys," he said, "I have just had word from



"The Echo was destroyed," Van Ness said.

Point Arguello. The approach of the Echo took place as predicted. The two satellites came close together—and the Echo was destroyed! Something from the mystery satellite hit it, punctured it, shredded it!”

Mike and Johnny gasped. “The satellite is armed!” said Mike slowly.

Van Ness nodded.

CHAPTER 7

SIGNALS RED AT CANAVERAL

THAT night, in bed, in the little room in the main building at Skyhook which they shared during their times there, Mike and Johnny talked about the mystery in the sky. "How do you think the shooting was worked up there? Is there an astronaut inside the satellite?" Johnny speculated.

"I don't think so," said Mike from the darkness in his corner of the room. "If there were someone in it, surely he'd have to have some channel of communication that we would be able to spot. It could have been automatic, you know. A sort of proximity fuse gun, automatically activated when any space object got within its radar range."

"Perhaps it was directed from the ground, from some secret operational base here," put in Johnny. "It may be controlled and in communication along

some level of ultrahigh frequency we simply haven't tapped."

"Possibly," said Mike, "but consider the problem that would present. It would mean that the operator would have to be in a position to actually see the satellite and anything coming to it. How would the hidden operator, without any large visible radar or telescope—assuming he had to stay hidden—possibly keep such a vigil. No, the direction must have been from within and most likely simply automatic. It wouldn't be too hard to rig up such a system, if microengineering were available."

"The Russians haven't been too good at microengineering," said Johnny. "At least, not so we have been able to observe. Most of the failures they've had, when they've had them, indicate difficulties in that direction."

"Hmmm," Mike thought a bit, then said softly, "Did it ever occur to you that the Chinese have always been handy with tiny toolwork? Their art and toys have been famous for that for centuries."

"You implying this satellite could be from Red China?" said Johnny, and gave a slow low whistle.

There was silence in the little room. Then Mike said, "I don't know. I don't think they are capable

of it on their own, but maybe they are working with the Russians on one, like we helped out the British on their rocket experiments.”

“Ever think,” said Johnny, “that maybe this satellite isn’t from Earth at all? That it’s really from outer space and simply engaged in observing us?”

“With little green men, two inches tall, directing the firing,” Mike said, laughing. “Somehow, I just don’t think so. Not this time. Maybe someday we’ll encounter another intelligent race in space, but when the U.S. says they tracked its orbit from some point in Eastern Asia, I’ll believe it.”

“Still,” said Johnny, “what are they concealing? What is it?”

“I wish I knew,” said Mike. “Let’s get some sleep now. We are going to Canaveral tomorrow.”

Two days went by without further thought of the mystery in the sky. They were two days packed with intense activity at the Cape for the two astronauts, Colonel Drummond, Dr. Van Ness, and a whole crew of regular technicians working on the Titan II at its special experimental silo on a corner of the Cape’s famous Atlantic Range firing grounds. The big Intercontinental Ballistic Missile was fitted with a new payload now, the Gemini

capsule which had been transported from St. Louis.

It was a race to get set, and the race was going well. This would not be a manned shoot, however, so the two boys worked alongside the men setting it up and arranging the two manlike dummies who would ride in it. They knew that what was learned from the coming test shoot would stand them in dead earnest the next time up, when their own lives would be in the balance.

Therefore it was not until the hour before the firing that they had time to catch their breath and just stand around. The place they were standing was on the roof of the Central Control building, just above the big room where the space research engineers would watch the master controls for the coming test, where the countdown was in progress, where the minutes were ticking away backward toward the moment of firing.

There were but a few others there and no reporters, for anything connected with Task Force Q was always free of reporters. Mike suspected that several of his friends might well be around on the sands at Cocoa Beach, for there were some who were "in the know" about his space exploits, even though the astronauts had never received permission to write about them.

Right now, without Dr. Holderlin who was busy in San Antonio with the other four members of their group, only Mike and Johnny and their directors were present. As the minutes ticked away they talked about Gemini.

"If this goes well," said Drummond, "it'll mean your own take-off in another couple of months. You know the program for Gemini?"

"Sure," said Mike. "It's an intermediate step between the Mercury orbits and the main assault on the moon—the big Apollo program."

"Right," said the colonel. "Apollo is the main drive, the final major step, the one we've been working at. With Apollo we're going to put an American team on the moon itself."

"The Apollo capsule will be a three-man job, launched by the huge Saturn complex," said Johnny. "You can see the giant gantry for Saturn over there. It's bigger and more complex every time I visit the Cape."

"It's a honey. Blows a hunk of the Cape itself to bits every time they test it," said Mike. "You ought to see what's there."

"Time enough," said Van Ness. "Time enough. You have to take this step first. The Gemini will show how long a two-man team can stay in space, what problems they'll have, and how they can

work to attain rendezvous. The tricky part is going to be the connection with the Agena rocket which will be sent up as the payload for an Atlas."

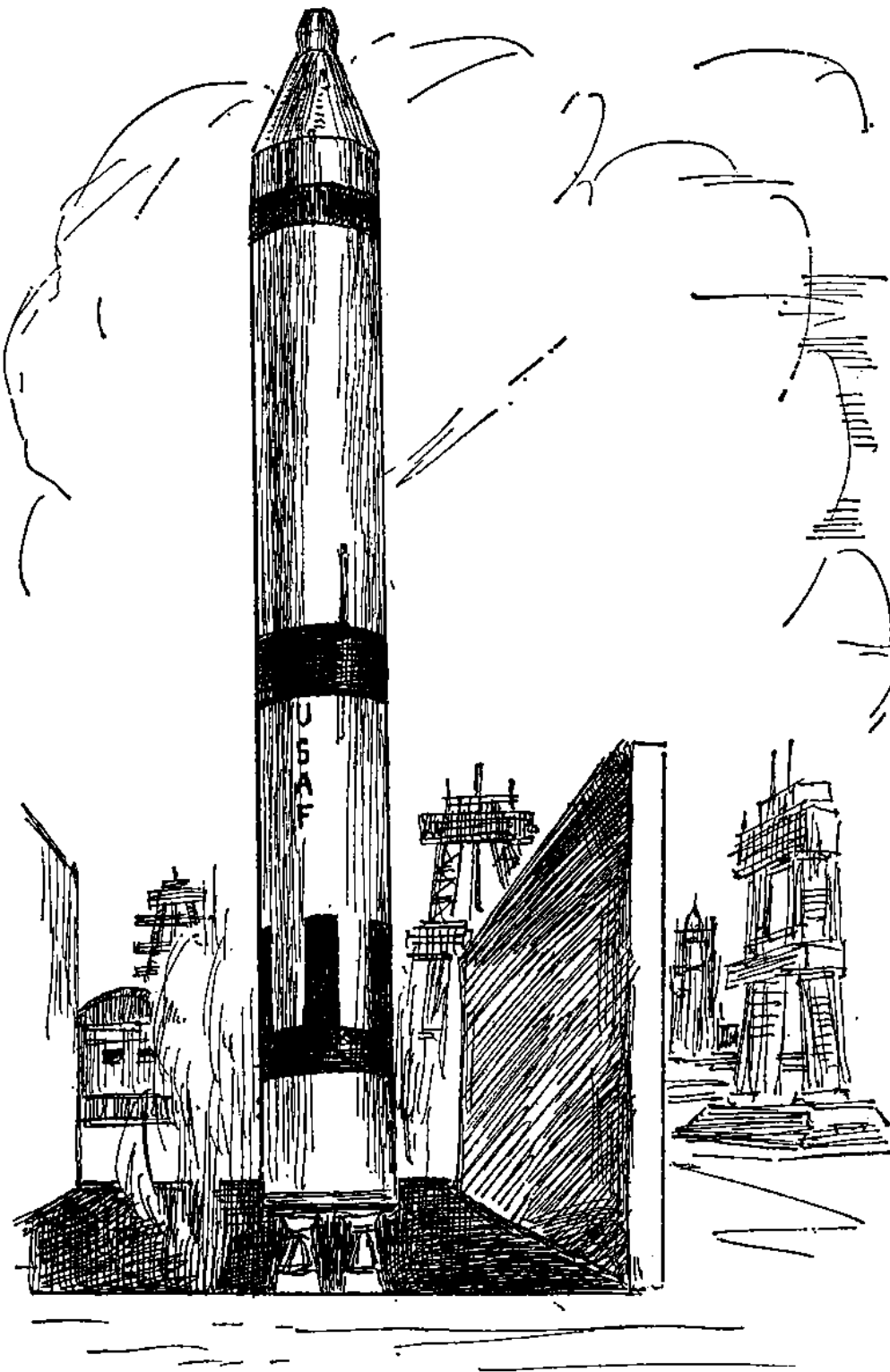
"That'll be a big step in itself," said Mike. "One rocket to carry a smaller one up that can be attached to the capsule and serve to turn the Gemini into a powerful little spaceship on its own."

"With that, we can perform some terrific maneuvers in space. We'll be a real spaceship, not just a bottle with a man in it," said Johnny. "It makes you realize how fast we're coming along."

The minutes were ticking away. They could hear the relayed voice calling out the time and the voices checking down the readings on the many connections far out across the Cape where on an area cleared of sand two great concrete emplacements lay flat down, with a roundly bulging blockhouse distantly in charge.

Mike pointed silently. Now the concrete surface was splitting, and what had been level was rising up in the form of two huge concrete and steel doorways, opening like a trap door in the ground.

They watched, silent save for the steady unemotional count of the speaker somewhere off in the distant blockhouse. All around the Cape, they could sense a stillness as workmen and engineers



on all the dozens of mighty complexes, at the many towering gantries, at the low hangars and buildings, were quitting their work to watch the coming event.

This was a different shoot. No standing tower with a glinting polished space rocket, no streams of rising clouds as liquid oxygen boiled away, no streams of water waiting, none of the strange ghostly turmoil that marked the Atlas shoots. Only the two huge doors standing high and open now, masking a hole, a deep well in the distance.

The Titan II was a solid fuel job, a ready-for-action defense guardian, now ready to go with its delicate load.

The countdown grew to a close. The red lights were on the gantries, alert was sounded, the sky was clear, all traffic was stopped, all eyes were riveted on the distant site.

The count was down to three, two, one, zero . . . and there was a moment when not a single person on the Cape breathed, not an eye moved. Then rising like an unexpected steel piston rod something came from the ground. There was smoke and there was a flare of fire, blinding white-red, and a thundering roar that echoed and rocked over the entire landscape, and the Titan II rose into the air, riding its beam of fire, gathering speed

as the eye watched. From its top could be seen the tiny projection that was the top-shaped Gemini, until that too was lost as the glistening thing arced up into the sky. The roar and thunder raged around the Cape, bounced off the ears of the men on the roof of Central Control, thundered through the streets of Cocoa Beach and across the causeway and waters to the city of Cocoa where men stopped in their work and wondered what it was.

Then the light was fast vanishing in the sky, a brilliant, blazing point of fire, winking out at last, and the word from the command post was, "Go!"

CHAPTER 8

SKYHOOK EMERGENCY

FOR a few more minutes the little group stood up there on top of Central Control watching the speck diminish into the sky as the deep thrumming roar vanished and silence came back to the Cape. Then, at a nudge from Van Ness, the four turned and descended to the room below from which the flight was monitored.

Here, sitting at several great consoles whose lights and dials duplicated exactly the course of the new satellite and the readings from inside the robot-directed Gemini, several NASA engineers kept a watch. For the time being, the satellite was out of their control, being reported in from the next station out on the range. It was in orbit, and was proceeding along scheduled lines.

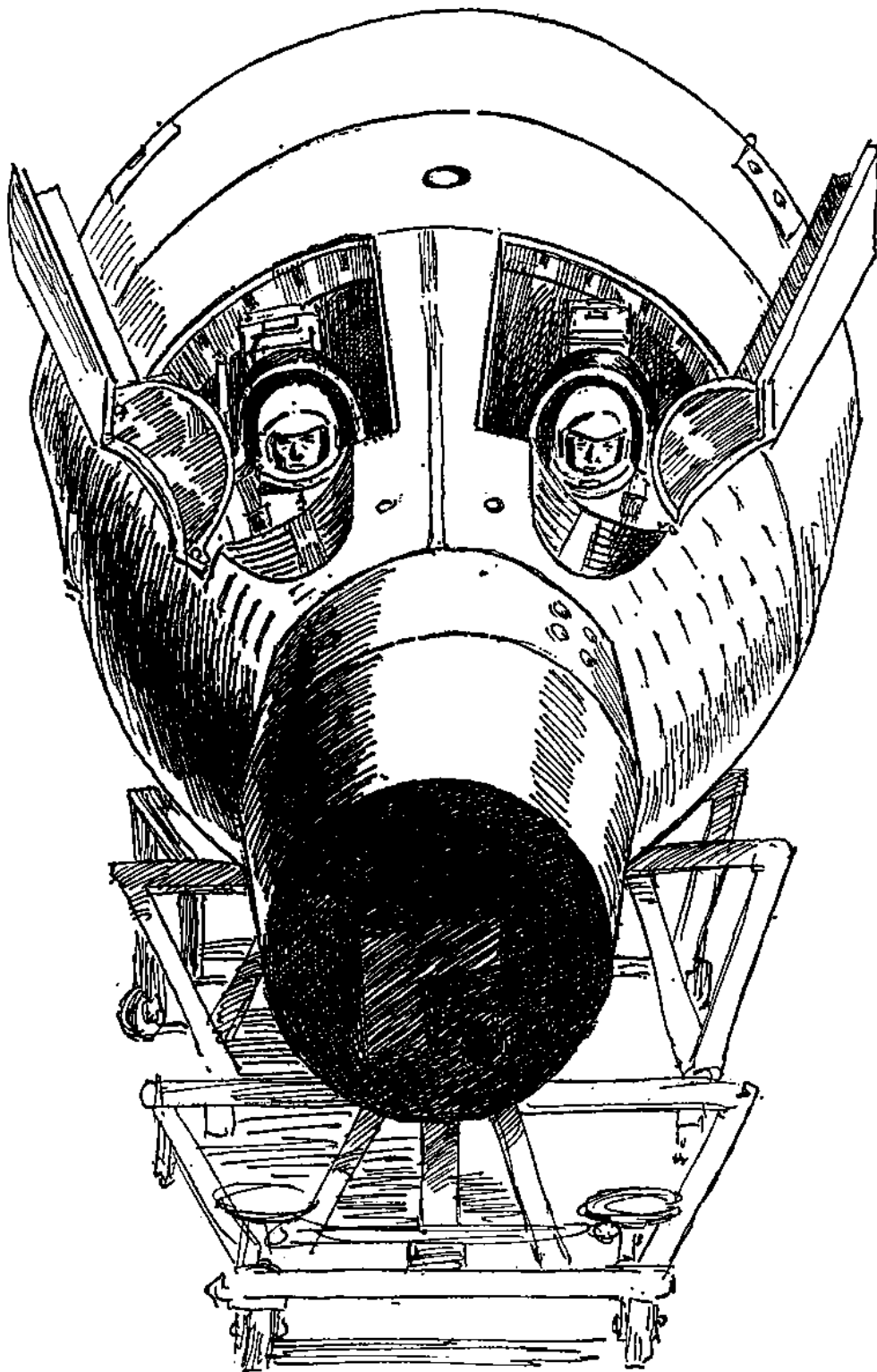
"In another hour and a half, less a bit, it will be around the Earth and back again," said Van Ness. "Stand behind the duplicate Gemini control

board and watch. When it comes over North America again, I want you two to take over the controls from here to familiarize yourself with them."

The ninety minutes passed swiftly, with reports steadily coming in from tracking stations around the world. Then Mike and Johnny seated themselves in chairs before the board. The panel, a bank of three sets of dials and readings, was an exact register of conditions within the capsule above. The central board showed the dials as they would be seen by an astronaut riding in it. The side panels gave readings for temperature, direction, and stress for the inside and outside of the space vehicle.

As it came within the range of the Canaveral station, Mike and Johnny together switched off the automatic controls, and took manual charge of the Gemini capsule a hundred and twenty miles up. By perfect radio connection their every move was obeyed instantly by the space satellite.

So the day passed. The capsule looped the world three times. Then, under Mike and Johnny's direction, both shifting back and forth as pilot and co-pilot, the capsule was brought down, its course braked, its descent into the atmosphere handled, its temperature kept under control, and its parachutes



A Gemini on a stand

and retrorockets tempered according to readings. Finally the capsule was landed in the Caribbean several hundred miles at sea from the Cape. The two young astronauts had trained themselves by its flight.

"A good job well done," said Van Ness, as they flew to Orlando in a light USAF passenger plane. "Tomorrow we shall have the report on the capsule itself after recovery, and we shall be able to discuss it further at Skyhook."

The two were tired, for it had been a day of exciting concentration. From the plane, they shifted to a waiting car which drove them out to the isolated base of their secret group, America's Advance Scouts for Space Exploration, the former Quicksilver project.

The next days went by in quiet study. Dr. Holderlin, the space medicine expert who made up the third member of their directorate, called in from Texas where he was working, and they talked briefly afterward with other members of their Q team.

On Saturday, Vivian drove herself home from her school, and there was a break from work as the day gave promise of tennis and some fishing later on. During a lapse in the day's fun, Vivian found herself sitting on the edge of the little lake at

Skyhook, drying out after a swim, when Mike and Johnny came out of the water, dripping and laughing.

They sat down in the sun to rest and Vivian, always a hero worshiper, started to tell the two about her visit to Mexico and the Guaymas station. The two listened with half an ear, for they were used to her steady babbling and they were tired.

But suddenly Mike caught a comment about the readings on the mystery satellite and he sat up and looked at Vivian, who seemed unaware that she had been talking to an inattentive audience. "When I told the stranger that Dad had been studying the orbital record, he was really quite impressed. Goodness, but it does make me feel I'm in at the heart of things."

"Wait a minute, Viv," said Mike, holding up a hand. "Who was this stranger? Did you get his name?"

The girl looked at him with her blue eyes sparkling, and shook her head. "Now that I think of it I just don't remember he ever mentioned it. But he was such an impressive young man, and so very smart and clever, with just the nicest sort of accent. I think he must have been an aviator for he seemed to know something about it."

Johnny sat up now, beginning to wonder, but it was Mike who gently pushed the inquiry. What did he look like? Could she tell what he was doing in Guaymas?

"Why, he was a real dreamboat type," said Vivian with a sly glint, seeing a chance to test whether she could make Mike jealous. "He had the cutest little mustache, and light brown hair, and the nicest smile, sort of like he was having a little fun all to himself. And he had short hair just like an Air Force man you know."

Mike frowned. "Did his accent sound a bit like this?" he asked and then said a few words in the faint studied precise style that he remembered Arkady Kosmodin using when he had met him once before.

"Why, Mike," she said. "That's just too cute for words. How did you guess? Do you know him? I thought he was Air Force! I'll just bet he was with Air Intelligence just to keep an eye on me for Daddy!"

Mike stood up then brushing the sand from his trunks. "I just possibly may know him and he just possibly was from an Air Force Intelligence. The question is what Air Force and whose Intelligence? Excuse me, but I want a word with our own Intelligence and right now."

Mike left them, walking rapidly across the grounds to the main building. Johnny looked after him, his brow a bit troubled. Vivian was just amazed. "Why, he seemed positively put out!" she exclaimed. "Gracious, I'll bet he really was mad at me!"

"No," Johnny said. "I don't think he was mad at you . . . but I think you started something just then. Excuse me, I think I better go after him."

The young Cheyenne stood up then, and strode after his friend.

Within a half hour, there was a conference of war at the main building. Colonel Drummond was quite interested in what Mike reported, and Vivian was called in. A couple of telephone calls were made to the Pentagon in Washington, and in three hours more a special courier arrived by helicopter from Orlando. He dropped off a small packet of photographs.

"Vivian," said the colonel, as the little group gathered around the desk in his office—the two boys, the girl, Van Ness, and a major from the USAF Intelligence—"look at these photos and tell us if your friend from Guaymas is one of these men."

He spread out a file of pictures of Soviet cosmonauts at public appearances, of shots taken by pro-

fessional cameramen and by USAF photographers during these Red Air Force men's public travels.

Vivian glanced over the photos, looking at pictures of the Soviet Union's several space fliers, Gagarin and Titov, the others, and their star, Kosmodin. She gave a gasp, pointed to a photo of the last named, standing on a platform in Moscow, waving to a crowd.

"Why, this is the man!" she said. "I'm sure it's the stranger I met."

The others exchanged silent looks. The Air Force major leaned forward. "You did mention to him where Mike Mars was and what he was working at?"

Vivian drew back, put a hand to her mouth. "Oh," she gasped. "I guess I did . . . But he seemed just like a tourist!"

They smiled. "He was a tourist all right. A nosy one," said the major. He turned to Van Ness and Drummond. "I guess we can assume that the Soviets know what our next Q project is going to be. But how does it tie in with that mystery satellite?"

"They still deny it's theirs?" asked Mike Mars.

The major nodded. "Only we don't believe them. It's theirs all right and Kosmodin's trip to Guaymas proves they are secretly checking its or-

bit. We're badly worried up in Washington. I'm going to call in now about this and I wouldn't be surprised if it didn't get us a quick decision on some action."

He left the room. The others waited, saying little, nobody trying to rebuke Vivian who looked crestfallen and upset.

After about half an hour on the phone, the major came back. "Will you take the phone, sir?" he asked Drummond.

The colonel went out, and returned in ten more minutes. "Pack up, boys," he said. "You're going off to California tomorrow. We're advancing the Gemini operation and putting it on a guard alert."

"To California?" said Mike and Johnny, standing up at the same time.

The colonel nodded. "To Vandenberg Air Force Base. They're going to work out an intercept for that satellite that will be able to dodge its defense. And you're going to be it."

CHAPTER 9

COUNTDOWN AT VANDENBERG

IT is an unfortunate fact of life in this twentieth century of the world's history that countries find it necessary to keep watch on the activities of other countries. Especially is this true in the great competition that occupies the main interest of international affairs, that between the United States and the American way of life and Russia and the Soviet way of life. These two powers, the mightiest on Earth, are pitted against each other in a race for the hearts and souls of all humanity.

In this struggle which knows no boundaries and acknowledges no limits, save that of actual warfare, against which only the increasing might of the other cries caution, the collection of what is called intelligence is essential. Intelligence is a word for an occupation which is not nice, that which is better known as spying.

At Vandenberg Air Force Base, located on the

Arguello Peninsula of Southern California, the United States maintains the best location for the sending up of satellites taking a pole-to-pole orbit. Those flying from Canaveral on the opposite coast travel equatorially, around the belt of the wide wonderful planet we all inhabit. But from California, there stretches out another rocket testing grounds, the Pacific Missile Range.

Because of the unusual location of Southern California, extending farther west into the Pacific than the vast bulk of South America below, a rocket fired into a longitudinal orbit from there will not pass over inhabited land. It will travel over the watery bulk of the Pacific, pass over the Antarctic and loop around the world, to cross once again in the north over the Arctic and then down again. For this reason American polar orbital flights are launched from Vandenberg or the naval base next door to it at Point Arguello.

Polar orbits are quite valuable for many scientific reasons. But where the necessity of observing the land mass of our great world rival, the U.S.S.R., is concerned, a polar orbit is essential. Occasionally, therefore, satellites having military observation purposes are launched from Vandenberg.

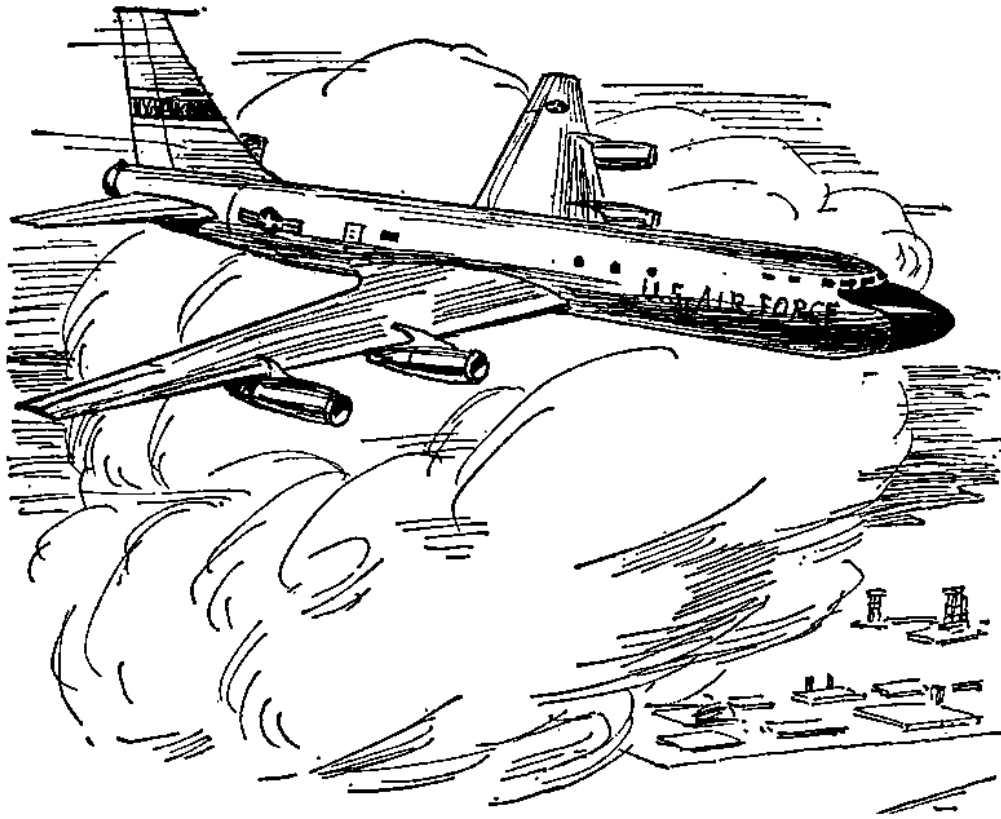
This is no secret. The world knows it.

The Russian position however is somewhat different. The location of American rocket-launching areas is public knowledge. It is no mystery to the Russians because it is no mystery to the Americans. Only the location of Russian bases is a mystery. The Russians themselves have not been told where they are. For this reason space observation is something Americans have to do.

Since the Russians do know where our bases are, their problem is different. Knowing them, they have to find out what is going on at them. Arkady Kosmodin was engaging in such a task when he managed to meet the Van Nesses in Guaymas. Where and how their spies operate is difficult to say. But that they must exist is a matter of necessity to Soviet Intelligence.

Let it be said therefore that when Mike Mars and Johnny Bluehawk flew from Orlando, Florida, to Vandenberg, it was noticed. Someone somewhere was looking out, for the person of Mike Mars had by now become a mystery that the Soviet space agency desperately wanted to solve.

Mike and Johnny were hardly worrying about that sort of thing when they arrived in Vandenberg. They had visited the famous base before, several times, in the course of their work on the



X-15 and its Scout launching program. But the wonderful terrain never failed to arouse admiration in Mike.

The Arguello area was a secluded and beautiful region of rolling sharp hills, green valleys, and thin winding roads connecting little white buildings that were radar stations or tracking bases or the low cement foundations for rocket launchings. Here and there the red or black webwork of a rocket gantry rose sharply. The blue of the Pacific Ocean hemmed it in on two sides, and

the general appearance was that of a peaceful and quiet grazing land.

But sometimes the peace was broken by the deep raging roar of rocket engines when the blue sky was cut by the rising fiery tail of an Atlas launching an Explorer or a Titan carrying an experimental nose out into the airless regions above the Earth.

Mike and Johnny, stepping from their plane, were shown to quarters and called at once to a conference in the main operations building.

An officer met them in the room that had been set aside for this special emergency project. "Greetings, men. Colonel Carlson, at your service. Major Vecker, and Major DeSantis." He introduced the two other officers present.

"Captains Samson and Bluehawk," said DeSantis, a dark-haired smiling Latin. "I heard of you two only this morning at our Intelligence session, but I must say it's a surprise and an honor. I didn't know that we had a group of astronauts nobody had heard about."

Mike laughed and shrugged. "It's nothing, sir. Somebody had to do the rush work, and we were lucky to be called on."

There were a few more comments, then the colonel called them to attention.

"You two are going to be sent up in the Gemini capsule in forty-eight hours. I hope you are ready. We know that the time is insufficient for you to be really fully prepared to meet all the emergencies involved, but the situation does not allow us to wait."

Mike nodded, his face serious. "It's true that we have studied the Gemini, but not as completely as we'd like. However, we'll do our best."

Colonel Carlson nodded, deep brown eye serious in his lined careworn though still youthful face. "There is a Titan II silo out here on our grounds. We have used it in the past for various experimental tests. A Gemini two-man capsule has been flown in here from the McDonnell plant with a crew of workmen who are even now installing it in place of the nosecone of the Titan, and are checking it out."

"Fortunately," said Johnny gravely, "the Gemini can be checked out far more easily than the old Mercury capsule. Its basic tooling and systems are located in the third and lowest segment, and can be examined through doors in the outer shell. It'll take about forty-eight hours for a reasonably correct checkout, if time is pressing. It'd take many weeks to check out the Mercury because of its tighter space setup."

"The checkout has been going on already," said Major Vecker, blond and blue-eyed. "In three shifts, all through the night."

The two astronauts nodded. "What about the Atlas-Agena setup. Is it ready also?"

The colonel nodded. "Your Agena rendezvous rocket is being tested out now at another pad in Point Arguello. Your Titan vehicle goes from here, right next door. You understand the routine, don't you?"

"Correctly," said Mike, realizing that he was expected to state it. "We are boosted into orbit. Then the Agena, fully tooled and fueled for flight, is also put into orbit as the payload of an Atlas rocket. Our orbit and the Agena's orbit are calculated to come as close as possible.

"If this works as planned, we then can maneuver the Gemini, which has some motion power in its own jets, to a point where it can meet the Agena in its orbit. We then bring the two together, link them, and thereby make one spacecraft. This, being powered by the Agena engine, becomes a powerful and strong spaceship, the most powerful that anyone has ever sent into space.

"With this combined vehicle, it was the intent to conduct certain experiments in space,

which would provide us with knowledge for the bigger tasks of the Apollo moon flight systems." Mike finished his outline.

The colonel nodded. "The experiment this time is not any that was planned. This experiment is one of rendezvous, though. Your orbits will be calculated to allow a close distance to that of the mystery satellite. You will then utilize the Agena's power to catch up with this unknown body, come alongside, and proceed to investigate it."

Mike and Johnny nodded. The two majors in the room breathed out softly. There was a moment of silence.

"Just getting close to it will be a triumph in itself. But to investigate it, well, that will be a problem you will have to meet as you can. For we know that this satellite is equipped with some kind of automatic defense equipment." The colonel was talking.

"You will have to dodge that or put it out of action. You will have to try to determine exactly what this satellite is. If it is dangerous to America, you will have to destroy it, or render it harmless." The colonel paused.

"I hope you realize that there is a possibility that this satellite may be something very deadly

indeed. We have thought for some time that it was possible to put an atomic bomb of many megatons strength into orbit. Such a bomb could remain circling the world until the time came for it to be re-entered into the atmosphere and crash down upon the surface of the world. If it contained a hydrogen bomb, such a satellite could blast a large chunk of America out of existence in time of war. We cannot allow such a thing to be in the skies. Are you two ready to dismantle it, if that is what it is?"

Mike and Johnny looked quickly at each other, their faces serious. Mike turned and looked at the colonel. He said in a soft, low voice:

"We're Americans in the service of our country. Whatever needs to be done we will do—whatever the danger."

The colonel nodded slowly. "Thank you, gentlemen. Now let's look over this schedule for the operation ahead."

CHAPTER 10

WHITE KNIGHT ONE

FOR a couple of hours, the men went quietly and carefully over the program, Mike and Johnny checking the plans for their emergency orbit and doing their own careful calculations on them. Because the calculations for such an orbit are highly complicated, involving the exact split-second knowledge of movement of bodies in space, the speed—second by second—of all the forces in motion, no single person could hope to work these figures out. The figures are arrived at by the skilled use of highly complex calculating machines built for that purpose.

Nevertheless the results can be quickly checked to see if they make sense, and a good astronaut has to know his mathematics skillfully enough to put it to such use. Mike and Johnny, trained aviators, trained astronauts, had studied such math-

ematics and had mastered the type of calculations that engineers must make use of.

There was plenty to occupy them and they did not have cause to speculate further until they had satisfied themselves that everything was in order. Mike lifted his head at last, for his mind had also been occupied with the question of the satellite as a bomb.

"If this thing is actually a bomb in orbit, then it is to be presumed that it can be triggered by radio command from the country that sent it up?" He looked to the colonel for an answer.

The colonel nodded. "It would have no value if it were not. On the other hand, they would prefer certainly not to do so. Hence we believe they have other protective devices ready to act to prevent tampering with the thing. One of those we already know—some sort of automatic gun or rocket gun aimed by radar at any approaching object."

"When this shot took place, surely it must have altered the course, speed, and orbit of the satellite?" Johnny commented. "Any shot fired in space would act as a rocket blast."

"That's true. But it did not alter the course of this satellite and that is something we also wish you to look into," said the colonel.

"Mystifying," mused Mike. "I suppose there's a simple answer though . . . and we'll find it."

"I'm sure you will," said the colonel. "After we have a bite, suppose we go over to the Titan II silo and start your personal checkout of the passenger section of the Gemini."

"Certainly, sir," said Mike, recognizing that the request was just a polite form of command.

While this was going on, certain information just received in the secret space center of the Soviet Union was being evaluated. Several of the best planners were going over this material, and with the news that the mysterious Mike Mars and his sidekick, the Cheyenne astronaut, had been seen arriving at Vandenberg, a decision was made.

Arkady Kosmodin, working at a hangar nearby, was called to the phone. He spoke briefly, left his work on the large Soviet space vehicle, at that time being rewired for new duties, and sped to the command center. Exactly what was said there in the next hour cannot be determined, but when the dapper Soviet cosmonaut left he was accompanied by speeding escorts across the vast grounds to a distant gantry and hangar. Here work began on equipping him with a space suit,

while other workmen scurried about the giant gantry preparing the huge Soviet rocket for a new task.

Arkady was frowning a bit as he was being helped into his suit. "What is bothering you, Comrade Major?" asked one of the technicians. "You are not worried about this flight are you? It is hardly anything, I am told. Just a few orbits."

Kosmodin shook his head. "No, I am not bothered by that. It is this Mike Mars person. I can handle the situation very well, but who knows what this young American is up to now? We have met before and now in a day or two, we may just possibly meet again."

"So," said the helper. "What is that? Two men in space at the same time. Is nothing."

"Is something," corrected Arkady, "when the two men are one man too many. Never before has there been warfare in space. This may be the start."

"Warfare? But who has declared war, Major? I heard nothing about it on the radio," queried the assistant.

"And you will not hear anything," said Arkady. "This is a kind of silent war which nobody will admit to. We are not at war, no. But in

space, what happens nobody will know except a few generals on both sides. We agree to keep it secret because we do not want our countries to fight yet. Is not worth it, yet."

"Yet?" said the technician.

"Yet, I said," was the cosmonaut's comment. "This is between astronauts. We maybe carry this on right to the moon. Nobody know but us. Is better that way. Today we have lead. We must hold it. This Mike Mars is closing the gap, him and his friends. The command we agree to in secret is Stop Mike Mars. Is new slogan, nobody know but space men here."

"Stop Mike Mars!" said the technician. "I never heard of him before and now I never hear of him again."

"If you're lucky, that is," said Arkady, trying the catches of his suit.

"If not lucky, we not hear of you again, eh?" said the helper, shaking his head.

"Ha! You hear of me again, all right," said Arkady, sniffing. "Get on with it!"

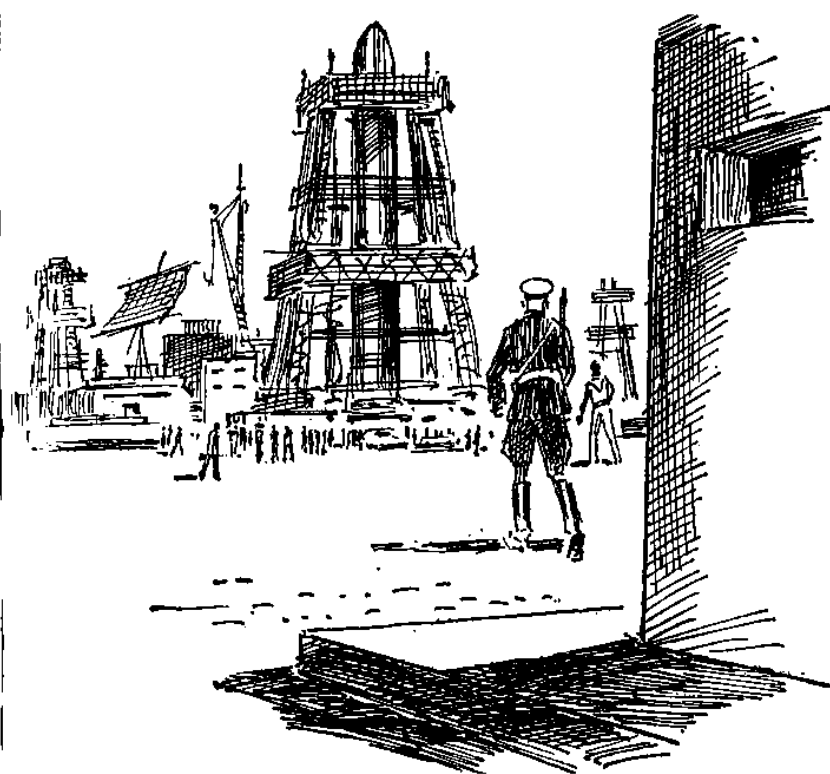
Back at Vandenberg, Mike and Johnny were now at the silo. The firing point for Titan II rockets at Vandenberg was out at the far section, in the rolling hills near the sea. Here the low



flat cement doors of the silo were now open to allow the men more space and light.

Trucks had brought the Gemini over and had deposited it beside the silo, where cranes had lifted it, slipped it into the great underground chimney, and attached it to the cargo head of the huge Titan II missile.

The work of checking out the instrumentation was still going on as Mike and Johnny went down the narrow winding metal stairs into the silo. Workmen in white coveralls were working

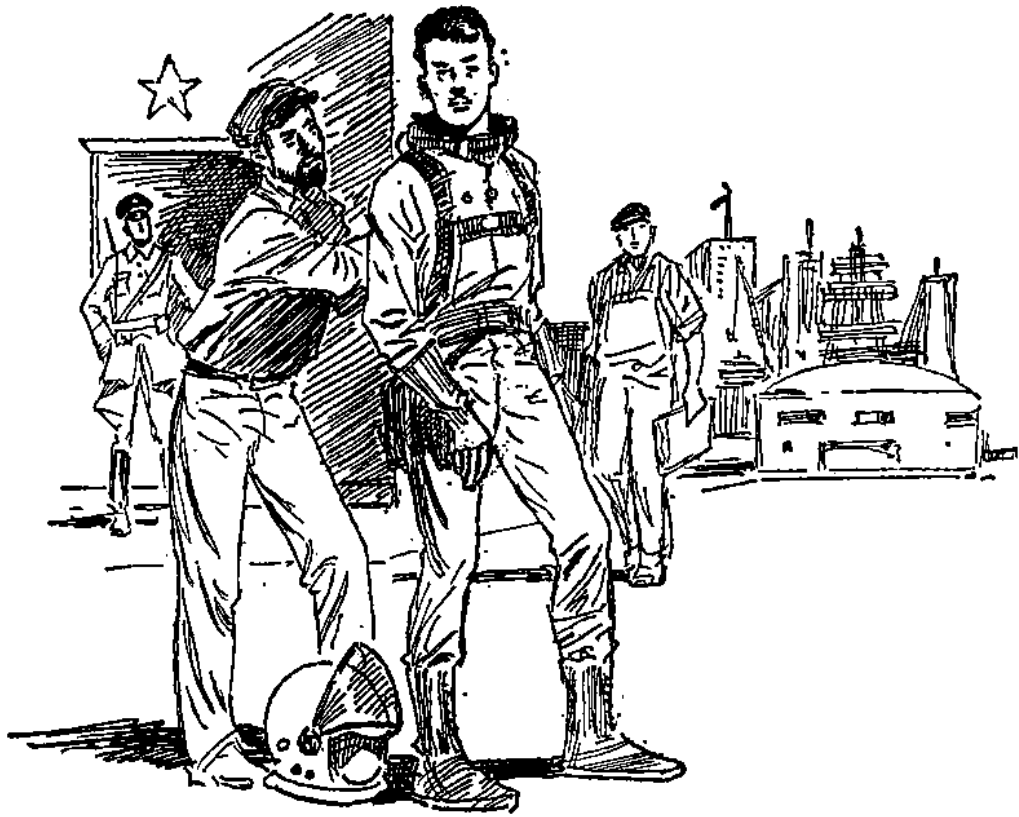


Kosmodin said, "Never before has there been warfare in space."

on the rear third of the top-shaped vehicle, and the curved panels were wide open, revealing the array of wires and connections within.

Mike and Johnny came up alongside of these workmen and looked on, hanging onto the thin metal scaffolding. "Everything A-OK?" asked Mike of the foreman.

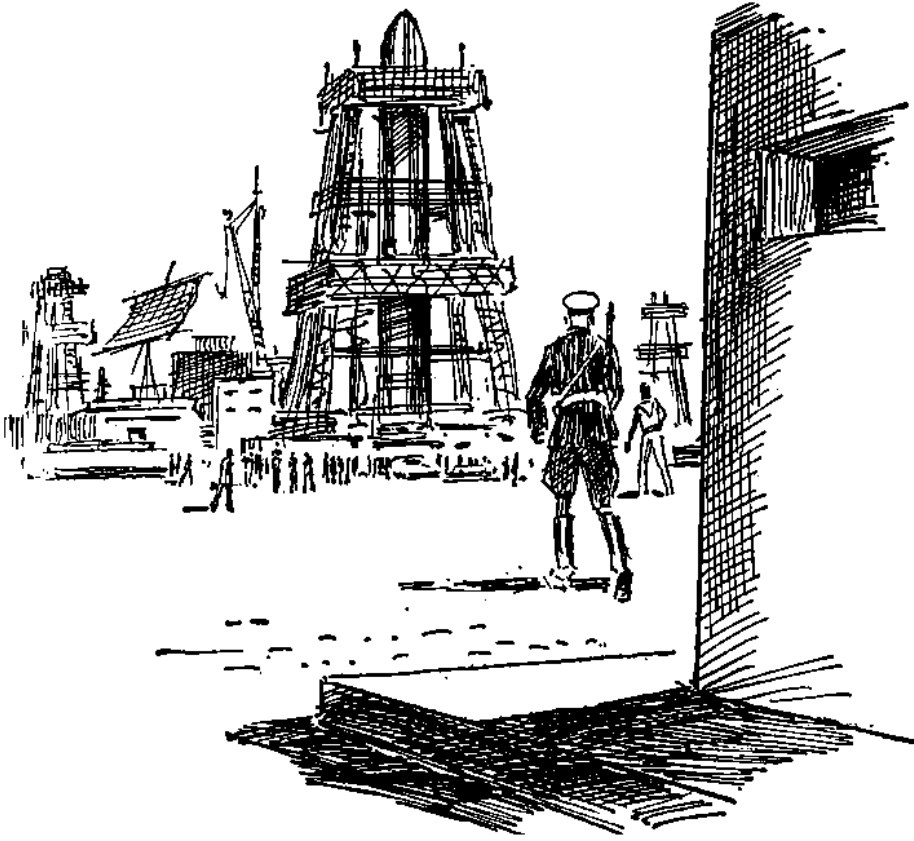
The man holding the checkout book looked up, nodded. "Everything shipshape so far. We'll



flat cement doors of the silo were now open to allow the men more space and light.

Trucks had brought the Gemini over and had deposited it beside the silo, where cranes had lifted it, slipped it into the great underground chimney, and attached it to the cargo head of the huge Titan II missile.

The work of checking out the instrumentation was still going on as Mike and Johnny went down the narrow winding metal stairs into the silo. Workmen in white coveralls were working



*Kosmodin said, "Never before has there
been warfare in space."*

on the rear third of the top-shaped vehicle, and the curved panels were wide open, revealing the array of wires and connections within.

Mike and Johnny came up alongside of these workmen and looked on, hanging onto the thin metal scaffolding. "Everything A-OK?" asked Mike of the foreman.

The man holding the checkout book looked up, nodded. "Everything shipshape so far. We'll

be through in another four hours here. We're from the McDonnell plant in St. Louis, you know. Came with the Gemini all the way. You may remember some of us from the plant."

"Sure do," said Mike. "We're in good hands."

The foreman looked at the two curiously. "You the fellows going to take this up? I thought you were just learning."

Mike looked at him. "We'll be checking out the pilot's section ourselves. As for who takes it up, I can't say. But if you see us around here tomorrow, you can guess what you please."

"I get it, sirs," said the foreman. "You don't have to worry. This thing is as good as we can make it."

Mike and Johnny climbed the tiny rungs to the top of the capsule, swung the hatchway open, and worked their way in.

"Tight quarters, but it feels like home by now," said Mike sliding into his seat.

"In fact, I am beginning to like this craft," said Johnny. "More cozy. Feels to me like a two-man plane, neat, compact, and roomier anyway than the tin can of the Mercury job. Got the checkout book, Mike?"

"Somebody conveniently left it here on the side of the seat," said Mike, reaching down and

taking up the bound clipboard of queries which had to be asked about each of the functions of their piloting controls. He flipped a switch on the panel.

"Gemini craft White Knight One Samson and Bluehawk, now beginning checkout of forward section," he spoke clearly, knowing his words were being taped in the ship and also in the command center of the Titan II complex, buried underground a few hundred feet away

"White Knight One?" said Bluehawk. "Is that what you've christened this?"

"Sure thing," said Mike. "You know chess. This is the white knight out to take a red pawn off the board—or maybe checkmate the red king."

CHAPTER 11

WINDOW IN THE SKY

It was dark when they quit their work and night when they returned to the main complex of buildings at Vandenberg. But the day was not done, for as they ate a late supper, Colonel Carlson came up. "Care to watch your target go up, gentlemen?" he asked.

Mike and Johnny looked up at once. "Sure thing," said Mike. "When?"

The colonel glanced up at the clock on the wall in the dining room of the Officers Club. "In about forty minutes, out at Pad Seventeen. I've a car waiting, if you can leave in five minutes."

"Boy, wouldn't miss this," said Mike, hastily grabbing the glass of milk that was waiting for him and beginning to gulp it down. "Last chance we may get to see this thing—if we fail to make rendezvous."

"Oh, we'll see it again, soon enough," said

Johnny airily, suppressing his own excitement.

Soon they were out of the trim club house, and driving across dark winding roads into the rolling hills beyond. The colonel sat in the front seat, next to the driver and the two fellows in the back seat, looking about.

"We're firing the Agena at our Atlas gantry B in the hills. We'll get there in time," said the colonel.

After some speedy driving, taking sharp curves on the winding roads in the darkness, they came to the gantry, where great beams lit the work going on and the vapor of escaping gases and boiling liquid oxygen were wreathing the tall white-painted tower that was the Atlas-Agena rocket.

They crossed to the blockhouse, entered, and took their places in the back while the efficient crew worked out the firing procedures.

"We use a standard Atlas rocket to carry the Agena into space as its second stage," the colonel said. "You know this is the Agena D, a modified version of the task rocket we used on the Ranger and Discoverer projects. Once the Atlas is burned out, it will disconnect, and the Agena will take off under its own power and proceed into the one hundred twenty mile orbital level. We will shut it off on its arrival in orbit, thereby leaving a res-

idue of fuel. That will make the Agena a power source for you when you get up there."

"That's right, sir," said Mike, his eyes glued on the television screens at the front of the block-house. In them he could see the final minutes of the countdown going on, the clouds of gas now almost concealing the form of the two connected rockets, the white light of the beams lighting them eerily and sharply. They looked like a strange goblin tower standing in a snowstorm or a blizzard-tossed sea.

The Agena was not a liquid fuel rocket. Like the mightier Titan, it used non-volatile fuels, fuels which remained in their liquid state without having to be refrigerated but which became active when spurted together into the fuel chamber. The Agena therefore would not frost up, nor would it require constant retopping of the tanks as the Atlas did.

It was a thirty-two-foot-long rocket, short as space vehicles go, but long enough for a second stage.

The count drew close, came down to the single digit numbers, then to zero.

There was a spurt of fire, a sudden racing of steam as water charged out against the now blasting Atlas and slowly the tall double-rocket rose

from its pad. The beams kept on it and as the men in the blockhouse watched, it gathered speed, then started racing upward into the dark night sky.

In another few minutes the task was done. They saw the Atlas burn out, they saw the brief appearance of a new star in the sky as the Agena's venturis lit up, and then darkness again.

Inside the blockhouse they were still in contact, watching the missile assume its orbit. Then, at last, the word came. "Controls off, all OK."

A brief cheer rose from the space-hardened crew, and the men rose from their seats and laughed. No matter how many times a space task is done, each new time it remains thrilling and wonderful.

"Well, a new moon is in the sky," said Mike. "Heading for the Antarctic air as fast as it can go. And due back around the world again in almost no time."

Johnny laughed. "Keep your eye on it. We've got a date with that new moon in a day or so."

Mike suddenly sobered up. "You know, that's a neat way of putting it. We haven't gone to the big real Moon yet, but this is something too. We're going to meet up with one of our own special moons. Out there!"

“Out there!” The colonel repeated it slowly. “Yes, that’s right. And out there is still another moon you’re going to visit . . . one considerably more alien.”

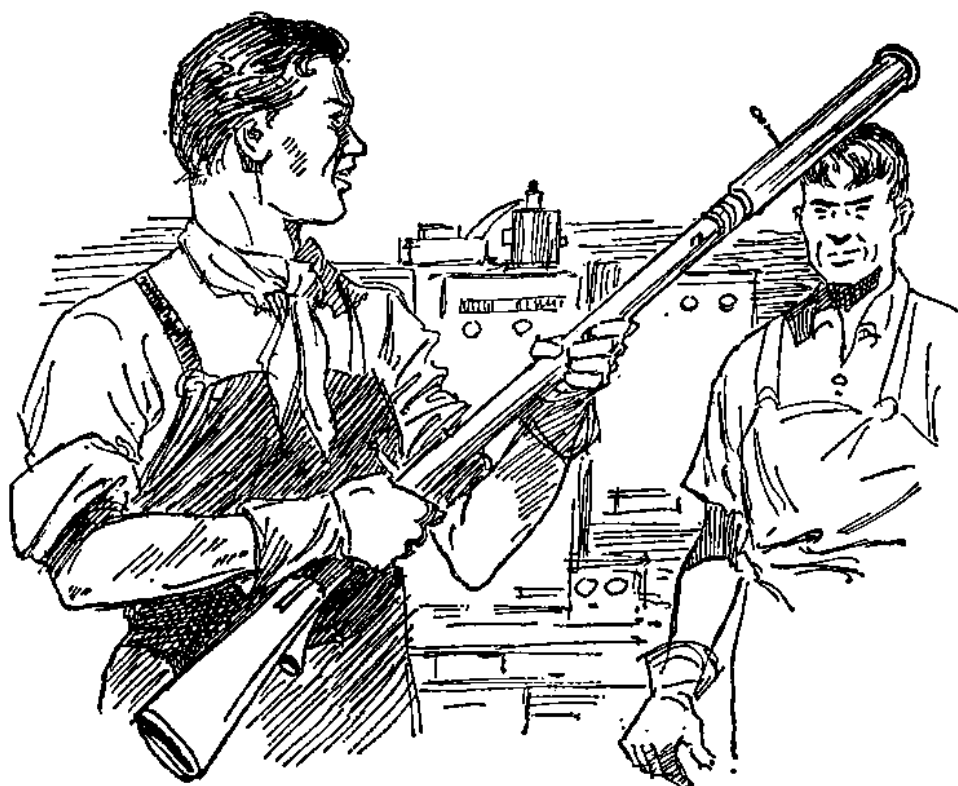
Back through the dark night they drove to their quarters, to bed, and to the morrow and a date with a mystery.

Off at another part of the planet Earth, in daylight, at another gantry, at another base, another astronaut was up and getting into his space outfit.

Arkady Kosmodin was set to go. At the pad, a huge rocket stood. At its nose, a large egg-shaped space vehicle, a standard Vostak-type multiorbital Soviet capsule. Workmen in dark overalls were finishing their final checkup.

One of them stood up to stretch and as he stood up he picked an instrument from a pair of hooks in the wall just beside the pilot’s seat. “A new quick-fire hand-operated rocket launcher,” he said to the man next to him. “This is an Army weapon, not a space instrument. I wonder what it will be used for in this orbiting test?”

The other shrugged. “Don’t ask too many questions. Probably he intends to do some hunting, eh?”



"A new quick-fire hand-operated rocket launcher," said the Russian.

"Eh . . . Looking for meteor mice, maybe. Or maybe American eagles flying too high?" the first workman said, looking at the gun, then putting it back at its fasteners.

"You talk too much," said the other. "Eagles don't fly that high."

"Some do . . ." said the other. "Some American kinds, I hear."

They both fell silent as they continued their checkout.

Dawn came over Vandenberg as it always did, and with it activity started once again at the big base. Some things that had gone on all night continued as before. When Mike and Johnny arrived at the headquarters building and looked in at the satellite observation post, the men there had been working since the early hours, and when they were through, others would replace them.

"The Agena is in a good orbit," said Major DeSantis, on duty at that time. "We'll have a window ready for you in about five hours, if you are ready by then."

Mike and Johnny looked at him quizzically. "We're ready any time you give the word, but what's this about a window?" asked Mike finally.

"A window in the sky?" added Johnny.

The major laughed. "That's astronomy talk here when two objects are in orbit, and you have to figure your flight to connect up with the other. The window in the sky means the time when the object is in position to pass at about the time your own launching is due.

"Because of the speed of the passage and the height of the orbit, each passing satellite leaves a window that covers only a certain area of the sky a few minutes each orbit. We have to time the firing of your Titan carrier when the window left

by the Agena is wide open. You will go up when your own orbit will be right behind that of the Agena's and you can close the gap."

"Oh," said Mike. "I get it. You look at the wide blue sky and you don't think about it as being limited, but it is. So we've got to look for an invisible wide-open window in that big blue wall of a sky and plunge through it when it's open, not before and not after."

The major nodded. "You could go after it, but then you'd take days and days to catch up with the Agena and you won't have that much fuel or food. You've got to make time because we're looking for a double window. The mystery satellite will be going over in about five hours in position to have the Agena close on its heels and then you fellows in the Gemini following third."

"Three balls in one basket," said Johnny. "It's good we played so much basketball at Skyhook," he jested.

"You forget," said Mike. "We're not the players in this. We're the ball!"

CHAPTER 12

TWO INTO SPACE

FIVE hours are mighty few when the wait is to end in a space journey. For Mike and Johnny, the morning went swiftly enough. By two hours before take-off time, they were in their contour seats in the front section of the Gemini.

Their stop before coming to the launching pit had been at the outfitting room of the NASA establishment at Vandenberg. Here they were fitted into the new type of pressure suits that had been designed for true space flight.

The tight, bodily encumbering high-altitude suits used in the Mercury and Quicksilver capsules were designed for flights of short duration. But where practical space flight living is concerned, where the pilot may have to remain days in his spacecraft, may have to do work in the safe conditioned quarters of his craft, something less restrictive was necessary.

To this end, and in direct connection with the big step forward of the Gemini, NASA had arranged for a new type of suit—a suit which could provide what could be called a “shirt sleeve” environment. These new suits, practical for long-term space conditions, had been designed by the Goodrich people and others. It was these new suits which Mike and Johnny wore.

They were familiar with them, for they had tested them out at the McDonnell plant during their work there. They resembled the older silvery pressure suits a good deal, but they could be loosened by the astronauts themselves, the sleeves and the leg sections could be detached and removed for exercise and greater comfort, and the helmet, once the hard airtight covering was removed, was a softer fabric job which could be taken off and set aside.

Unlike the complex attachments of the older suits which would require the services of a couple of technicians to be certain of their safety, once the astronauts had removed these suits, they could themselves put them on again, secure their airtightness, reattach their heating and ventilation controls to the capsule’s system, and be prepared to go out into outer space itself in safety.

These suits then were at long last the first

true deep space outfits, and Mike and Johnny were glad to be possibly the first to wear them.

"Comfortable?" Mike asked Johnny as he adjusted himself into the seat to the left.

"Sure thing," said the Cheyenne. "A lot more so than in the old outfits." Johnny Bluehawk was plugging himself into the attachments of the right-hand seat.

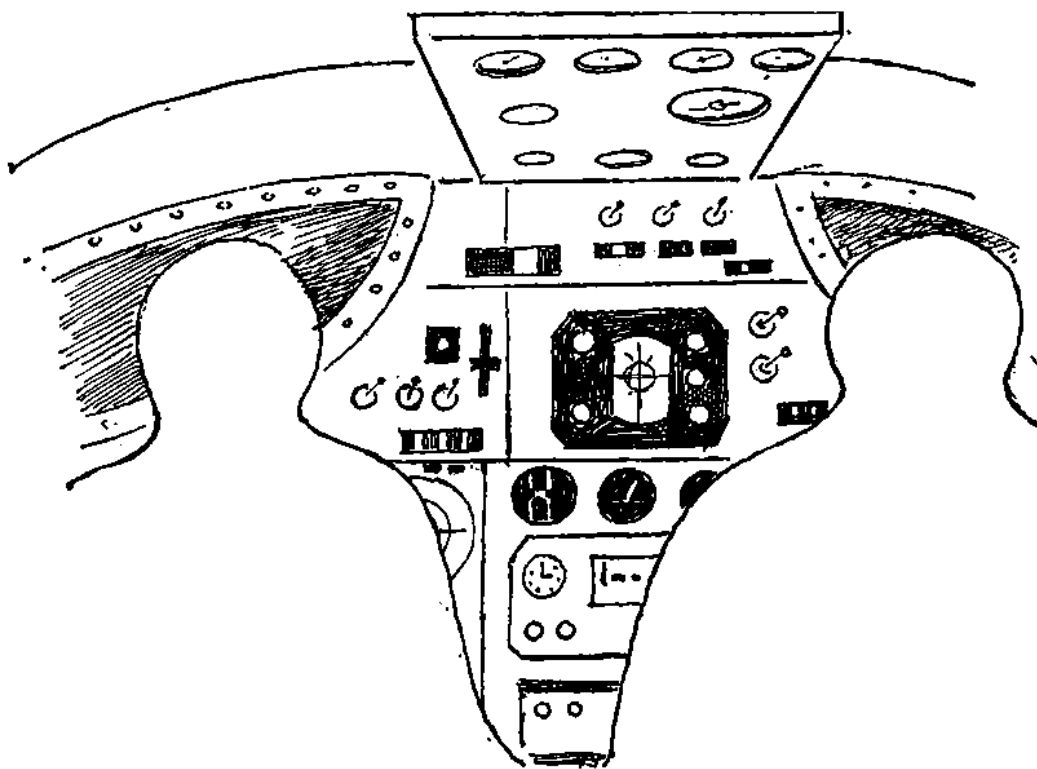
"Better be," said Mike. "Because we aren't going to get much time to make any changes for a while. Shall we begin our checkout once more?"

"I'm ready if you are," said Johnny. "Never hurts to repeat this thing often. You can't be too cautious."

Opening the communications channel back to the underground blockhouse, and starting the recording tape, Mike formally began the checkout countdown for the front section of the Gemini.

Another big change in the Gemini from the original Mercury capsule was that it was built in three sections rather than in one compact unit. Each of the sections could be detached to be independent of the other when the occasion called for it and each of them could be checked out separately.

The narrow top of the capsule, a long tubular section projecting above the conical first section



Partial view of Gemini controls

contained the adapter module, the equipment that would connect up the capsule with its target in space, the parachutes, and safety devices. This, along with the re-entry module, made up the first section.

The re-entry module was the actual space cabin. It housed the two astronauts, the controls for the craft, the radar and communication units, and all that was necessary for maintaining human life in space.

Attached to it, but separate from it, was the

retrograde section carrying the solid fuel rockets which would be used for correcting orbit, altering the direction of the capsule, and for slowing the capsule down at the time of re-entry.

The widest section of the capsule fitted on below this rocket area, housed the oxygen supply for the passengers, the electrical fuel cells and batteries, and the special liquid fuels for the main propulsion system of the capsule in space.

The two lower sections had been checked out independently prior to the astronauts entering the craft. All that was left was for the two now in their seats to satisfy themselves.

Of course the board before the eyes of the two astronauts showed them what the situation was at any moment in the two other sections—the state of fuel, the readiness of any part of the apparatus, the functioning of all systems.

Helmets sealed, feet resting comfortably on the rests adjusted to them, arms along the padded arms of the seats and hands grasping the control devices at the end of each arm, the two read off the panel dials and in their ears came the checkback comment of the technician in the control chamber whose own duplicate panel had to record the same figures.

Time passed. One hour to fire time. A half hour then.

Around the silo tension grew steadily. The carefully trained crew went through their established routines, but everywhere was the knowledge that this shot was different.

A new voice came on the earphones. "Hello, fellows. All set to have a look at our mysterious moonlet?"

"Colonel Drummond!" said Mike. "You got here for the shoot?"

The colonel's voice took a light lilt. "Well, it depends on where here is. I'm not at the blockhouse, if that's what you mean. I got into Vandenberg an hour ago and I'm at Point Arguello control headquarters."

"Glad to hear your voice," said Mike. "Where are the others located?"

"Everybody's somewhere," said the colonel. "Van Ness is at the Canaveral controls and will check your progress from there. Your orbit probably won't cross him for a time, but maybe you'll hear his voice once in a while anyway."

"And the rest of the fellows?" asked Johnny.

"Scattered about, at various listening posts. Holderlin is at Randolph. The rest are as far along

as we could get them in this short time. But mostly you know it's going to be up to you."

"We understand," said Mike, throwing a glance around the tiny cabin. They were still crowded, for, though this capsule was larger than the Mercury, its extra room was filled up by the second seat. The viewplates were perhaps a bit better than in the Mercury, where they had always been a sort of second consideration.

In the Gemini each astronaut had a narrow oval-shaped window set in a recessed section cut into the outer hull. From the outside the capsule, seen head on, would appear to have two narrow close-set eyes and a long boxlike nose.

The countdown proceeded. Around the silo men who were on the open ground moved away to areas marked as safe. Trucks drove off and away. In the underground blockhouse, men bent to their tasks with a deeper concentration. The two open cement doors, monster things, stood wide above the great pit. On a hillside a red light was flashing, and in the distance, over the ocean, a low-flying helicopter could be seen watching for unexpected ships or unscheduled interference.

"Ten minutes and counting," was the word. Mike glanced at Johnny. Behind the transparent helmet, the darkish features of his friend were

relaxed and his black eyes fixed calmly on the panel between them. On this trip, Mike was the commander, Johnny his crew, although this was a technicality. There could be no mistaking who had the authority in the event of a sudden emergency, however, and Johnny understood perfectly.

Somewhere above them, high above the blue sky, in the black airlessness a hundred and more miles up, a satellite passed on orbit. Shortly afterward, came a cylinder that was the Agena. The window in the sky was open, would remain open a short time, and the basketball to be thrown through this tiny sky window was now ready to be hurled upward.

"Three minutes," was the word.

Mike and Johnny braced themselves for the thrust of the rocket against them. There would be G-forces pressing against them. They knew them from previous flights, but each new time was a period of trial and agony. And in this, an untested style of vehicle, the question always remained as to whether engineers had calculated right. If they had calculated wrong, the capsule could crack apart and twist itself out of shape.

The two boys had to be ready for such an emer-

gency, even under the conditions of heavy strain and take-off.

At two minutes, the voice of Colonel Drummond broke in on that of the blockhouse speaker. "I have word," he said softly and rapidly, "that has just been handed me, that a large rocket has just been launched in a polar orbit from the Black Sea area. It would seem to be a manned spacecraft type of shot. You may have visitors."

"Check," said Mike quietly.

The countdown went on, came down to seconds, reached zero.

CHAPTER 13

THE AGENA BEACON

TO THOSE standing far from the site of the launching, those on the buildings at Vandenberg, those on the observations stations on the hills at Point Arguello, the first they knew of the take-off was the point of the one-hundred-and-ten-foot gleaming-white object rising from the ground. No gantry could be seen, for no gantry was used in this special firing, even though there is such a skeleton framework available for certain types of Titan II blast-offs.

Then from the gleaming needle could be seen a small sharp white flame and a rosy cloud of vapors forming below it. Far different this rocket from the blasting orange fires and billowing furious white smoke of the liquid oxygen powered Atlases. They could see the thing rising faster, gathering speed, flying like an arrow into the blue of the sky.

One hundred and ten feet of man-made space conqueror. Ninety feet of Titan rocket, twenty feet of Gemini spaceship. Of the ninety feet of rocket, seventy composed the powerful first stage, and it was from that mass with its great tanks and its fluted venturi nozzles that the initial power of the blast-off was coming.

Inside, Mike and Johnny were pressed into their seats, seats constructed to give the maximum comfort to the form of their bodies, to help their bone-and-flesh frames withstand the short but terrible period of increasing weight as the acceleration of their rocket gathered pace. Mike and Johnny had been through this before. They gritted their teeth, breathed against the growing pressure of their own ribs, and fought to keep their eyes from closing under the pressure of their very own eyelids.

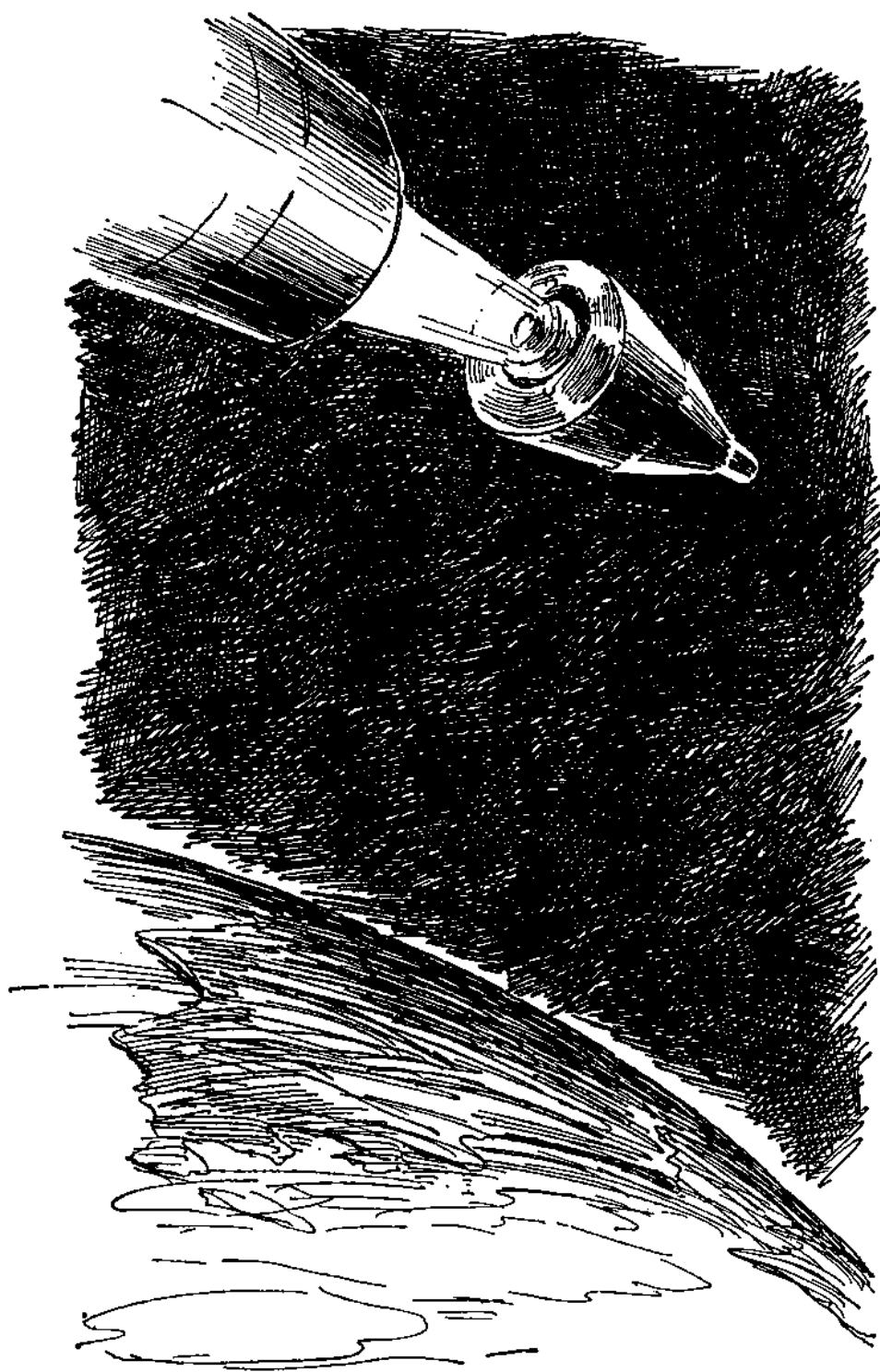
Seconds, more seconds went by, each with the drawn-out force of minutes and the pain of an ancient torture instrument. But Mike had set his goal long ago on the stars and this was a minor price to pay. He did not glance over at his friend to see how the Cheyenne was taking it; he could not have looked if he had wanted to, but he felt unusually good now.

On past flights, straining in his seat under the

force of an Atlas or in the single seat of an X-15 or the Dyna-Soar glider, he had but himself to contend with. Now he had a companion to go through what he himself was going through. A friend, and at the same time, another man for whom he, as the captain of the flight, was responsible.

Mike watched the dials register the speed and the time. The roaring of his own blood in his ears blocked for the moment any sound from his radio or his intercom with Johnny. He focused on the timing. Then, suddenly, there was a click somewhere, a quick moment of vertigo as the big first stage burned out, a split second of weightlessness as it disconnected, dropped off. The dials connecting its mass with his control board suddenly threw their needles back to zero, registered nothing any more. Then a split second later, the thrust was resumed, another force pressed on him.

The second stage had lit, the first stage had dropped off and they were headed for orbit. The rocket tilted as this occurred. Mike watched the dials creep around, saw his register reflect the shifting of the ship's position as it slewed over, changed from heading straight up to heading over and southward.



In a matter of seconds, the sky outside already nearly black, the stars already visible, the second stage cut out. Another click, this time quite audible, and in the sudden silence, Mike heard now his own breath puffing in and out in sharp hard gasps and he knew that the task was done.

"Bluehawk," he said into his throat mike. "Report your condition."

"Bluehawk here," was the immediate reply in his friend's tones. "A-OK. No sweat. And you, sir?"

"I'm all right," said Mike. "Not worse than previous take-offs."

"No," said Johnny, now raising his head and turning to look at his friend. Mike cast him a glance, nodded.

"Time to get to work, Johnny," he said. "I read us as being on course, one hundred nineteen miles up, heading southward in a polar orbit at orbital speed. Do you check me?"

"I check you all the way," said Johnny. "Weightless conditions prevail, too, as you may have noticed." His gloved hand reached out, pointed to a dangling string from the top of the cabin. It was bent and stayed bent.

"Our position is off a bit," said Mike. "Hold on while I correct it."

He pressed a button on his seat panel. From

somewhere in the second compartment a spurt of rocket fire blasted out sideways. There was a momentary feeling of spin; the dangling string moved sharply. The capsule reacted to the spurt, swung about in opposition to it, until it was pointed along the line of the orbit, so that the two astronauts could see their future path just as plane pilots do. For this was to be a guided flight, not one run automatically, and the two were to be pilots of a spacecraft for real.

The capsule sped on. Mike reached down, unhooked his suit from the seat, and sat up briefly. "All in order, I read," he announced.

"Check you, Mike," said Johnny. "Did you speak to the ground yet?"

"Will do." Mike suited the action to the words, opening his transmitter and calling, "White Knight One calling any station."

Instantly a faint voice came back. "Guaymas calling White Knight One. You are in the correct position. You are three hundred miles from Agena target, about seven hundred from Gamma 9."

"Thank you," said Mike, realizing that in a matter of seconds he would lose contact with the faint voice from below. Turning to Johnny, he

said, "Let's get after the Agena. I'm going to increase our speed and start closing in."

"Gamma 9 is the official listing of that mystery satellite, eh, Mike?" said his co-pilot then.

"Right," said Mike. "That's it. Hold on."

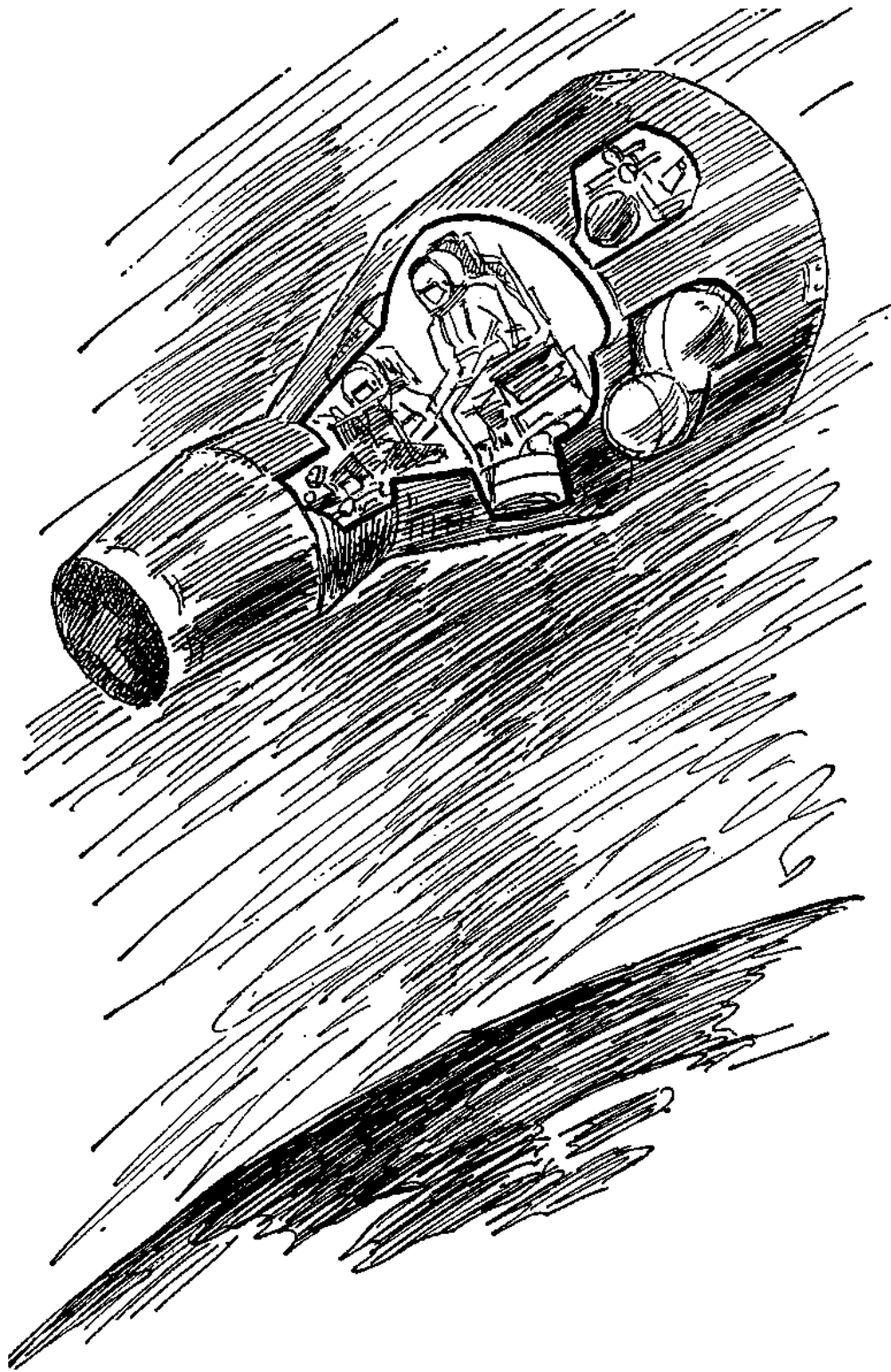
He pressed control buttons. Instantly from the storage compartments of the third and widest compartment, the outside base, blasted forth a small version of the same kind of self-contained fuel that had powered the Titan.

The capsule thrust forward. Not with the intensity of the huge Titan engines to be sure, not more than a one gravity push this time, but it would suffice.

The Gemini gathered speed, began to move ahead on its orbit even faster than called for. Ordinarily this would also serve to force the free falling object outward away from the Earth on a wider orbit, but Mike was guiding the vehicle as he would an airplane and he corrected its course with side jets to keep it on the same orbit and in the track of its objective.

They moved together through space, a second after the blast from the rear had turned off, once again weightless, but they both watched the green lit face of their radar.

Located nearer to Mike's than to Johnny's seat,



Cutaway view of Gemini

the rotating white line swung around and around and left a glowing field of green fading behind it.

Nothing and again nothing picked up. Empty space around the capsule and there was nothing the probing rays of the radar could bounce from.

Mike and Johnny looked out their windows from time to time, resting their eyes from the hypnotic green glow of the circular panel. Outside there were the stars, shining cold and white. By shoving forward and glancing sideways they could see the brilliant disc of the sun with its dancing auroral discharge, but they tried not to look. Ahead of them somewhere were two other objects in space but they could not now be seen.

Around and around the radar dial spun, and slowly but definitely the faster moving capsule passed on in its orbit. Below them the vast blue-green of the Pacific stretched with here and there a clouded section and faded at the horizon to mistiness and strangely lit shadings.

Neither of the young men spoke, filled once again as they had been before with the wonder and glory of space and with the silent beauty of their home planet below them.

Then both pair of young eyes caught a change in the radar. As the line of white swept past,

something seemed caught on it, hung on in a moment of lingering light splash.

"That's it," said Mike. "The Agena is in range now."

"Shall we set the computer for it, Mike?" asked Johnny.

"It will save time," said Mike Mars. Johnny pressed a control stud.

Somewhere behind them the capsule's sixty-five-pound computing machine clicked into action. Checking automatically the location of the Agena as detected by the radar, and checking also its speed and the speed and direction of the capsule, the highly concentrated and remarkable mathematical machine clicked out the answer to the problem of the speed and exact duration of firing needed to close the gap. Automatically, for now the computer was in control, the capsule shifted its position and automatically it blasted a second for correction. Then the Gemini was silently on its way.

"I'd have rather directed our flight by hand," said Mike, "but we can't waste time. Watch for the Agena now."

The two strained their eyes into the darkness of the airless sky ahead. They could see stars, they could see the Earth.

Simultaneously, both gave a happy yell. Something far ahead was blinking. A star flickering? A planet eclipsed by a moon? A meteor flight burning up as it hit the atmosphere?

"It's the beacon of the Agena," said Mike. "Time to take over from the machine."

"When we see the Agena's flashing light, we will be about twenty miles away," said Johnny. "That was fast."

Mike was silent. He was punching the studs and bringing the capsule down in speed as it began to close the gap. The next half hour would be one of the most important and the most dangerous. It was a maneuver in rendezvous that had never been tested or rehearsed, because there had never been any way of doing so.

Now was the moment when all the theories would be put to trial.

CHAPTER 14

RENDEZVOUS IN SPACE

BRINGING the Gemini into actual physical contact with the Agena represented the most important part of the project. Without its successful completion, no further step could be taken in the conquest of space regardless of how powerful launching systems could be made. So during the next fifty minutes Mike and Johnny concentrated on this task.

Everything had been designed to make it easy, and yet it could not be said to be that simple. The two objects were about twenty miles apart—a computer and a radar had achieved that step. Now that the Agena was visible, the eye and skill of a human pilot was needed.

The two objects were in almost identical orbits. Their speeds were very nearly equal, the capsule moving up on the Agena at a slightly greater rate

of speed, which Mike was cutting down as they closed in.

By the end of fifty minutes the two objects were hanging several hundred feet apart from each other. Both were circling the Earth in orbit. Both were in nearly empty space, beyond 99 per cent of the atmosphere. Around them the stars shone cold and white, in a sky so dark blue as to be almost black. Part of the time the cold orb of the moon could be seen, visible to the naked eye as if in a pair of field glasses so that its ridged craters and mountain chains could not be mistaken for the famous "Man in the Moon" image as seen through the haze of the Earth's air belt. And the Sun would be caught up and passed by in their track, a brilliant blazing disc with its aurora visible.

Ahead of them the two astronauts could see the shape of their objective, hanging like a metallic cylinder in the darkness of the sky, sunlight glistening from it and its beacon light still faithfully flashing on and off.

"Easy now," said Johnny tensely, as Mike gently pressed a stud. A flick of a rocket in their capsule and they drifted still closer to the cylinder. They watched as the distance narrowed, mentally calculated their position. Another tiny quick flick

and the course was corrected slightly until it seemed that the gap was being closed on target.

Johnny kept his eyes glued to the radar whose indicator kept him warned exactly of the two bodies' positions as they neared each other. In space, against the near blackness of the void, the human eye could not accurately determine distance. The Agena was still little more than a tiny spot in the darkness.

"Elevation ten, left at stud eleven," said Johnny. "Half a second."

Mike, his eyes on the Agena itself, punched the required stud, let the side rocket jet blast for the moment. He could see the Gemini swing against the stars as it did so—the effect was as if the stars were themselves the ones swinging. The metallic gleam of the Agena sharpened, became clearer.

"Good," said Johnny. Mike nodded silently, watching.

"We can hold until we see how close we get," Mike said finally. The Agena slowly took shape, assuming a clearer outline. "Slowly does it."

The two watched in silence. Somewhere there was a buzz. Another buzz.

Mike pressed a stud in his seat. "White Knight One," he said.

"Ground control here. We have you in view at the moment. Anything to report?" The voice echoed in the two astronauts' earphones a little hollowly, it must have been at the edge of contact distance.

"A-OK so far," said Mike. "Proceeding to make rendezvous. Will call when successful."

"Roger," said the voice from the ground so far below. "You are going to be out of contact for a while. Observe the surface configuration before calling."

Mike snapped his agreement, though he knew the contact was already broken. He did not look down at the Earth below, for his mind was on the approaching rocket shape.

The Agena was coming toward them, or so it seemed. They could see it clearly now, its markings, its white-painted sides, its blunt nose cap toward which they must direct their own capsule.

The Agena had been flipped over by ground control once its tubes had flared out. Now its nose was at the rearward end, facing the oncoming Gemini. Actually the Agena was not coming toward them so much as in reality they were catching up with it, overtaking it in motion at orbital speeds.

"Now's the time," said Johnny. "Let's see you do it."

Mike let his breath out, held his hand over the bank of studs which directed the tiny side jets. He watched the Agena come closer and closer.

"We're going to miss it by a margin," he said softly, and pressed a stud just a flicker. The Agena seemed to arrest its swing away from them, suddenly seemed to be swinging back closer.

"Too fast," muttered Johnny, and Mike, thinking the same thought, pressed another stud. The Agena swung back again, a bit slower, more easily.

The two objects seemed now in line. The blunted end of the Agena rocket, with its connecting rods clearly visible in the pale light, with its blinker still signaling, appeared now to be directly in line with the connecting apparatus at the capsule end.

Slowly they drifted nearer and nearer. Johnny and Mike watched as if hypnotized, holding their breath.

Mike flicked a stud for a second. The capsule seemed to jump forward, seemed to move swiftly to make contact. Then, there was a bump, a jolt that jarred the capsule and the two saw the Agena pop back into full view as if retreating from them in a hurry.

"Close," muttered Mike. "We didn't quite hit it exactly, we bumped the rim."

"Good, for a first try," said Johnny. "Can you stop our retreat?"

Mike grunted, pushed a stud. A tiny jet somewhere in the rear halted the capsule. They knew what had happened, it was not at all unexpected. If the two objects didn't meet at the exact spot where the connecting rods would click, they would simply touch each other and promptly bounce away. For in space, in free fall around the Earth, neither had stability. Both were like the veriest feathers floating in space, but feathers with inertial mass like the satellites they temporarily were.

Again the tense moments of making a new contact were started. The two objects had drifted apart amazingly fast, for the touch had put a new thrust on each in opposite directions. Minutes more were consumed while the capsule worked its way back into position, got once again into line with the connector apparatus in the nosecap of the Agena.

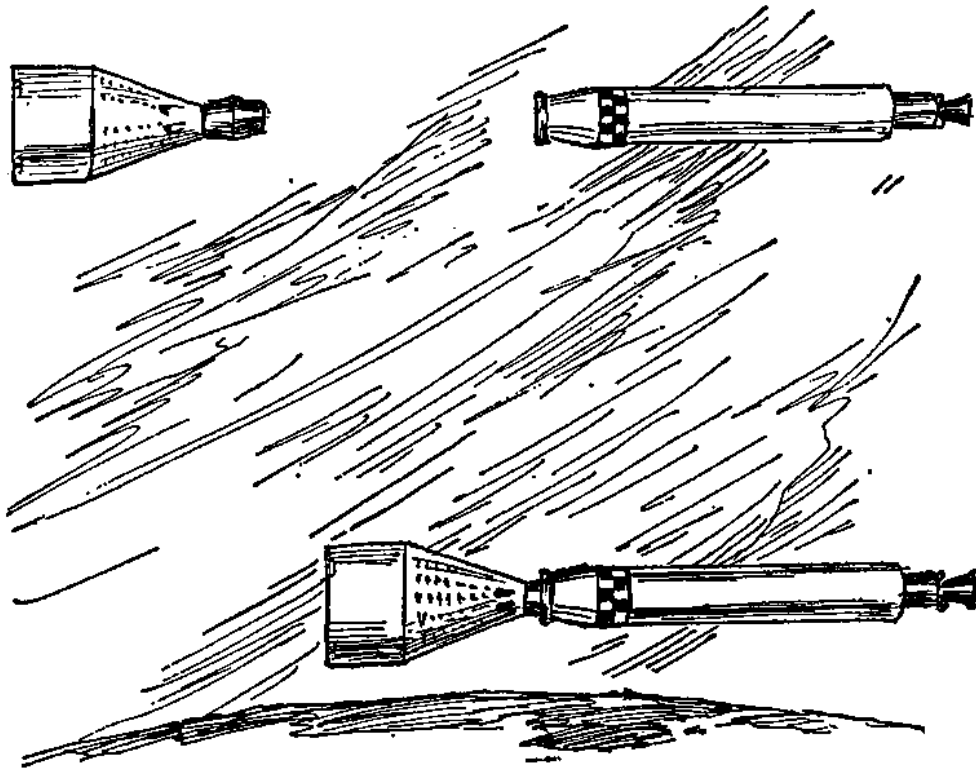
"Ready, Johnny," said Mike. "Let's go for broke once more."

"Looks perfect on the radar setup," said the Cheyenne, lifting his eyes now to look out at the Agena in space.

"I'll try it more gently," said Mike, flicking his finger over a driver stud.

The bulk of their target seemed once again to move toward them, to be on a collision course. They watched, tensely, as it began to fill their view, as they could see the round opening of the link-up coming toward them.

"A little over," said Johnny in a whisper. Mike let his breath out slowly, and his finger rested carefully on one of the studs. He watched, and then, with a sudden flash, flicked the stud.



Gemini-Agena contact in space

The capsule seemed to jump a little to one side. There was a moment of suspense, in which neither astronaut breathed, in which all existence seemed to stand still. Then there was a bump.

This time no kickback. The bump was instantly followed by a sharp click which vibrated through the tiny capsule. The capsule itself seemed to shake an instant as it pulled a few inches into place.

Another quick series of clicks pinged through the metal of the tiny capsule. Then silence again.

The two young fellows let out their breaths and turned their eyes as one on their control board. Dials that had hitherto been dead and registering only zero were now suddenly vibrant. The dials of their controls that ran through the connecting links to the controls of the Agena were active, alive, registering. Suddenly they were in control of the new rocket propulsion, suddenly their space capsule had become a real spaceship!

They turned their eyes from the flashing active dials to each other's flashing excited eyes. Simultaneously, they each gave a yell of relief and exultation.

Then both laughing, they reached over from their respective seats and shook hands.

“Mars watch out!” said Johnny. “Mike’s on his way again!”

Mike laughed. “Maybe we better tell Earth first.”

CHAPTER 15

THE FIRST REAL SPACESHIP

“CALLING White Knight One,” said the man at the console at Vandenberg. “All stations repeat, contact White Knight One, at earliest instant. Calling White Knight One.”

Standing just behind the NASA technician, Colonel Drummond turned a worried face to Dr. Van Ness, who had joined him. “The boys are still out of range. They are somewhere over Asia, crossing over Siberia and heading for the North Pole. In another twenty minutes perhaps Thule can raise them.”

Van Ness stroked his short spade-shaped beard. “I don’t think there is any reason to worry yet. There is actually a lot of time. The orbits won’t coincide for a while. They are working it out now, we will have the data shortly, but it is plain to be seen.”

“I know, I know,” said Drummond. “But I

want the boys to be prepared as early as possible. It's not beyond the bounds of possibility that the Russians may attempt a direct interceptor ground-to-space missile at them."

"Unlikely," said Van Ness. "If they were planning to do that—and mind you I doubt if they have such a thing in practical use yet—they wouldn't have sent up the space vehicle they did. Still, I wish we could warn Mike and Johnny to watch out."

The technician at the console continued to lean forward, watching the panels and dials that would register the appearance of the manned vehicle in space. "Calling White Knight One," he repeated patiently.

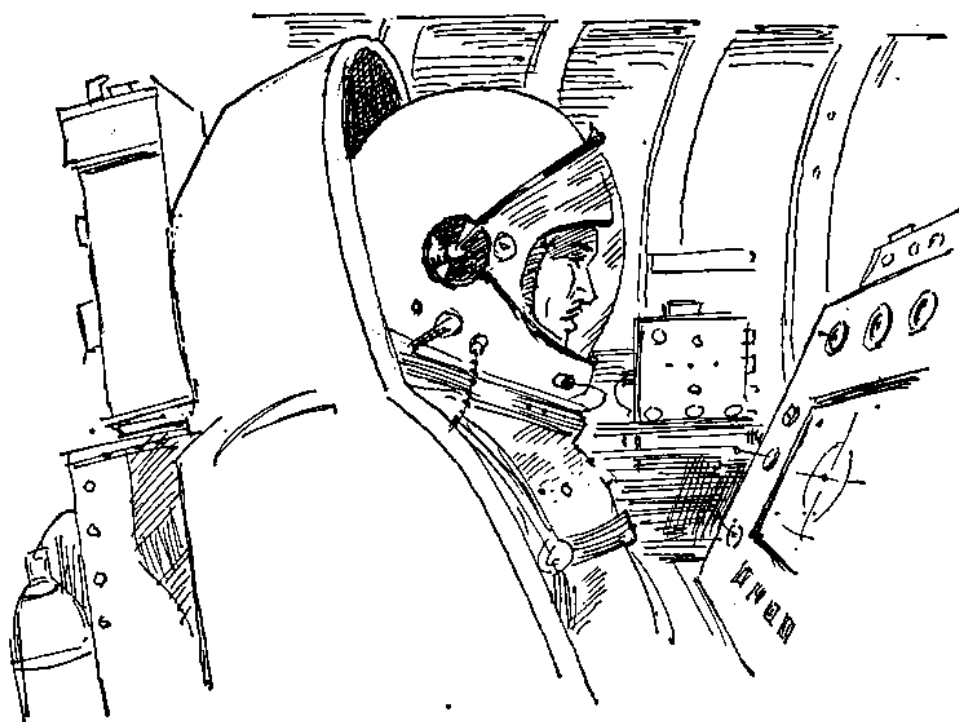
At the same time, in a distant part of the world, at a low building on the desert outside a major base in the steppes of vast Siberia, another man was also sitting at a console, speaking into an antenna-directed tight beam radio communicator. "Calling Red Eagle Ten," he said. "Come in Red Eagle Ten." He was not talking in English, his tongue was Russian.

For him an answer came in sharply in the precise words of Arkady Kosmodin. "Red Eagle

Ten here," said the cosmonaut. "I am passing over your latitude now, I am in touch."

"Report in, Red Eagle Ten," said the man at the console. "Headquarters wants to know your situation."

"I am on schedule," said Arkady's voice, echoing in the stone-walled room. There were several other men present there, men wearing the uniforms of the Red Air Force, and the Soviet Rocket Artillery. These men stood still, listening with intense interest.



*"I will intercept its position,"
Kosmodin declared.*

"I have completed the first orbit of the Earth, pole to pole. My orbit is elongated, but I can bring it to control. I am looping the Earth faster and deeper than the secret satellite is. I will close in and in another three such orbits, I will intercept its position."

"Very good, Comrade Kosmodin," said the man at the console. One of the Air Force officers, a high one by the looks of the gold and stars on his stiff shoulder boards, stepped up and whispered something to the communications man.

"I am instructed to ask if you are aware of the presence in space of an American capsule, on an orbit similar to that of the target?"

Kosmodin's voice was already becoming fainter. "I have heard of it. I have my instructions. We will perhaps see some new fireworks in the skies, eh?"

The base operator allowed a tight smile to pass his lips. "You have your orders, comrade. In three more orbits, eh?"

The voice from space was becoming fainter. The man at the board turned the power on full, but the voice continued to fade. "I am looking forward to it. Red Eagle Ten, in space, cutting out for now."

As the voice faded, the men in the room looked

at one another and at the blackboard where another man had been chalking up the orbital figures as they were registering. As one, the eyes of all glanced from the figures to the clock on the wall. Time was moving steadily on.

Seated side by side in the capsule of the Gemini, Mike and Johnny checked down their readings once more, calling them out to each other. Every word of this would be taped and would be automatically transmitted back to Earth when the position of their capsule in space was ready to answer the signal for this recorded information. They knew that the same figures were probably being registered below, but always a double check was the first safeguard of life in space.

"Are we ready to start propulsion, Mike?" asked Johnny finally. "I report everything in full functioning order."

"Then we are ready," said Mike. "Instead of undergoing the standard routine tests set up for this experiment, we must plot our direction to catch up with and close in on the mystery satellite. Will you feed the figures into the computer?"

"Can do, will do," said Johnny. The small but excellent computer was built into the equipment of this capsule because the mathematical calcula-

tions necessary to navigate by hand in space are sufficiently complicated to take more time than astronauts can spare when in flight. Mike and Johnny were trained to do such figuring, for mathematics and the dynamics of space motion were important and basic parts of all space training, but even the cleverest mathematician cannot figure as fast as a powerful computer. Time, when a capsule is in motion, is extremely vital.

Motion in space is no simple matter. To be taken into account was the speed, position, direction, height, and orbit of the capsule, the corresponding information for their target, information concerning the rotation of the Earth below them, the position of the moon and stars, and the necessary amount and time of thrust in order to shift speeds and height to bring the two objects into alignment.

Rapidly but carefully Johnny punched out the necessary data. He ran it off, came up with a set of figures. Once again he fed the original data into the machine, checked it off, returned a set of figures. "This is it, Mike," he said.

"Call 'em off," said Mike. Johnny began to read the numbers and Mike adjusted his dials, noting the times and changes.

"Strap in," he said. "Let's go!"

Both men strapped themselves into their seats. Mike punched a button.

A tiny jet in the Gemini's side flared a moment. The combined space vehicle swung around under the impulse of the gas jet, until now the Agena's powerful reaction engines faced the rear. Mike punched another button.

The long body of the Agena rocket flared into activity again. A long blue-yellow flame shot thirty feet into space, and the powerful tubes thrust the new combined craft forward, once again in the wake of Gamma 9.

They were traveling backward, for the capsule fitted onto the front end of the tubelike Agena, and the two astronauts were therefore facing toward the engine rather than away from it. But in the emptiness of space, the fact that the blunt wide end of the capsule was now the forward end meant nothing. Streamlining had no significance where there was no air pressure to resist. And while the space around White Knight One was not as "hard"—that is, as near to a vacuum—as the space between the planets would be, it was nevertheless for all practical purposes empty of air.

The two astronauts were not as comfortable as they would have been pushed back into their contour seats. Instead they pressed against the belts,

and at a higher acceleration this would have proven rather risky, but because they had calculated the situation, traveling backward was quiet tolerable.

Their periscopic equipment enabled them to see in the direction in which they were heading, though their space windows faced backward now. The view was not necessary to their travel. They saw only the glory of outer space, the stars shining as cold points of brilliance, the curve of the Earth below, a misty green and blue marvel, and the black-blue distances of space.

They sat in silence watching the functioning of their spacecraft. They were both thrilled at the turn of events. They were silent in wonder.

Johnny turned his dark eyes on Mike's smiling gray ones. "This is the first real spaceship, you know. It works."

"So it does," said Mike. "But this is also the first real space meeting. We will catch that satellite in another couple hours." He flicked out a hand, and at the proper moment he stopped the engine. The spaceship drifted on, in its changed direction and speed. Once again the two floated in weightlessness.

"Now we have to wait. When the radar registers, we take over once again," said Mike.

Johnny opened the transmitter. Almost at once,

a voice registered on their earphones. “. . . All stations repeat, calling White Knight One. . . .”

“White Knight One calling in,” said Mike crisply. “Do you receive us?”

“We have you,” said the strange voice, now suddenly excited. “Hold on, I’ll connect you.”

There was a series of clicks, then Colonel Drummond’s voice came. “Congratulations, boys, on a successful accomplishment. But you are no longer alone in space. I repeat, you are no longer alone in space.”

Mike and Johnny looked at each other sharply. As one they glanced over to a rack newly fixed in the side of their capsule, a rack that was not in the original plans. In it rested two Army bazookas. Could they be used? Would they?

CHAPTER 16

DECOY FOR A DEADLY DUEL

"BRIEF us, Colonel," said Mike briskly. In a few swift words, Drummond's voice, relayed halfway around the world and out into space, informed the two of the sighting by United States radar installations of a new Soviet space object.

"Its orbit is somewhat eccentric, but our preliminary survey indicates that it may very well intercept the mystery satellite at about the same time you will arrive. There is suspicion that this new space object may be a manned vehicle. If so, be on your guard."

"I hear you," said Mike. "We're ready. We expect to be in the immediate vicinity of Gamma 9 in . . ." and he proceeded to give Drummond their estimated time, their velocity and their readings.

By the time he was through, the connection

was already fading to inaudibility. Mike clicked off.

“Trouble, Johnny?” he said.

The Cheyenne shrugged. “There’s never been a space battle, and we had always hoped there never would be. But I think the hope is dimming.”

Mike frowned. “I never liked to think that space would be used for the settling of our little planetary surface grudges, but we have our duty to our country and to our principles. The space program is a defense program, as important to our national safety, as it is to scientific research. So we’re prepared.”

Johnny nodded, his lips set tightly. He watched the readings, looked out into space. He could see the shining cylinder of the Agena to the rear, now quiet, and in the darkness there seemed to be no motion.

Finally he spoke. “I will prepare for outer space, Mike. You are in command of this capsule, so you will have to stay with the ship.”

Mike turned his head. “Oh no, Johnny. You are going to stick with this ship while I go to the satellite. It’s because I am in command that I have the main responsibility. So you take control of the capsule while I go.”

The Cheyenne, his best friend, looked at him. "I can't agree with you, Mike. This is your mission. If that satellite is bugged, then I am the one to take the risk. You must return."

"Uh, uh," Mike shook his head vigorously. "I'm going. This is an order, Captain Bluehawk!"

Johnny tightened his lips, his face enigmatic. "If you insist, Captain Samson."

"I do," said Mike, and that was about as close as the two friends ever came to arguing.

Mike slipped loose from his seat, unstrapping his fastenings. He began to check out his suit, refastening all the looser parts, and then adjusting the new space helmet that had been designed for going outside into space. He had been in outer space before, but in the older Mercury outfit. It had served, for like all high altitude aviation suits, it was airtight and self-heated. But it had never been designed specifically for any lengthy stay in the unnatural conditions outside the protection of the space shell.

Mike fastened the outfit, fitting the helmet on, but leaving it open for the time being. Johnny left his chair and floating about the tiny space, checked out all Mike's equipment. Then he fastened on his own.

Time passed. The two astronauts were seated

again, watching the dials, reading the radar, listening in occasionally to Earth stations as they came and went on their unusual orbit.

Somewhere else around the world, Arkady Kosmodin was riding, clad in an airtight cosmic suit, watching his own timing as his curious orbit swooped first low, to some ninety miles of the Earth's surface, then out as far as three hundred and fifty miles. Out there, he knew there was danger of radiation, but the Soviet builders of his ship had assured him that they had devised protection against the radioactivity there, and he hoped they were right. As far as he knew, no Soviet cosmonaut had yet shown evidence of any burns or illness due to radiation, and some of them had been briefly in those areas.

Radiation was a problem that all spacemen had to live with. So far, no man had yet gone into the full danger belt surrounding the Earth, and when the time came for that, Arkady hoped that something more definite would be made clear to him about protection.

Meanwhile he had his work to do and he had a score to settle with Mike Mars. He smiled to himself, wondering whether he would reach the satellite before his American opponent did.

In the Gemini-Agena the time came when the ship's radar brought into focus a new object ahead of them. "That's it," said Mike. "There she is."

Strapped down, he punched the rocket motors into action. With deft, swift touches, spurts timed to the second, and watching his radar and the stars and Earth, he brought the compound space vehicle into alignment with the mystery satellite. He brought it up to within a mile of the space object, timing the speed until the two objects seemed to be in the same orbit at the same speed. They moved together through space.

From the point of view of the two astronauts, they were hanging still in space, with the tiny silvery body of the satellite motionless before them. Below the Earth moved slowly and majestically, and if they watched, they could see the stars wheeling. But the two objects, and the two men in one of them, seemed to be standing still in relation to each other.

Mike took a deep breath. "I think we'd better not get any closer. If it's armed, being closer might mean too much of a risk for the Gemini itself."

"If it's atomically mined, we'll go together, Mike," said Johnny.

"That'll be a great comfort, I don't think," said Mike. "But I'll fool it anyway. Time's awasting. Seal my helmet."

Johnny got up, floated over and checked the fastenings on Mike's helmet. It was now airtight, and Mike was a self-contained being, his own heating and his own air-conditioning in operation. "You're good for about three hours, Mike," said Johnny, over his helmet radiophone. "Don't take any unnecessary risks, and hurry."

"Right," said Mike. "Seal your own outfit, and let's exhaust the ship."

Johnny fastened his helmet. He strapped himself down into his seat. "Ready," he announced.

Mike took out from its container the new zero gravity belt that had been devised for just this purpose. It was a wide fiber waist belting, containing thirty-two bundles of compressed gas, which could be jetted out at the control and direction of the wearer.

Weighing nothing in space, the gas jets acted on the body of the wearer in the same way that a rocket would act on the body of a ship. It was far more convenient than the makeshift jump belt Mike had used once before in a space operation.

Mike then took a kit of tools, slipped it over his shoulder and strapped it to his suit. He then

lifted a smaller sack, containing other apparatus, and slung that over him.

Loaded he looked like a sort of olive-green Santa Claus, all bundled up, bulging in a wide suit, and carrying sacks, but there was nothing holiday about his mood. He was grim and ready to go.

"I'm opening up," he announced. With Johnny's word of acknowledgment in his ear-phones, Mike unbolted the toggles on the small hatchway, pressed a button that let the air out of the capsule in gentle-equalized jets so as not to disturb the position of the capsule in space. There was a pause of several minutes while this was going on.

Johnny watched the internal pressure dial drop steadily. When it was on zero, he pressed a button on the control that double-checked the hand controls at the door itself. The hatch now swung easily outward, Mike squeezing himself aside to let it open.

There was no puff of air, for the inside of the capsule was already airless. Mike worked his way into the narrow escape hatch, found his way outside the capsule. For a moment he hung alone in the emptiness, one hand still on the edge of the little door.

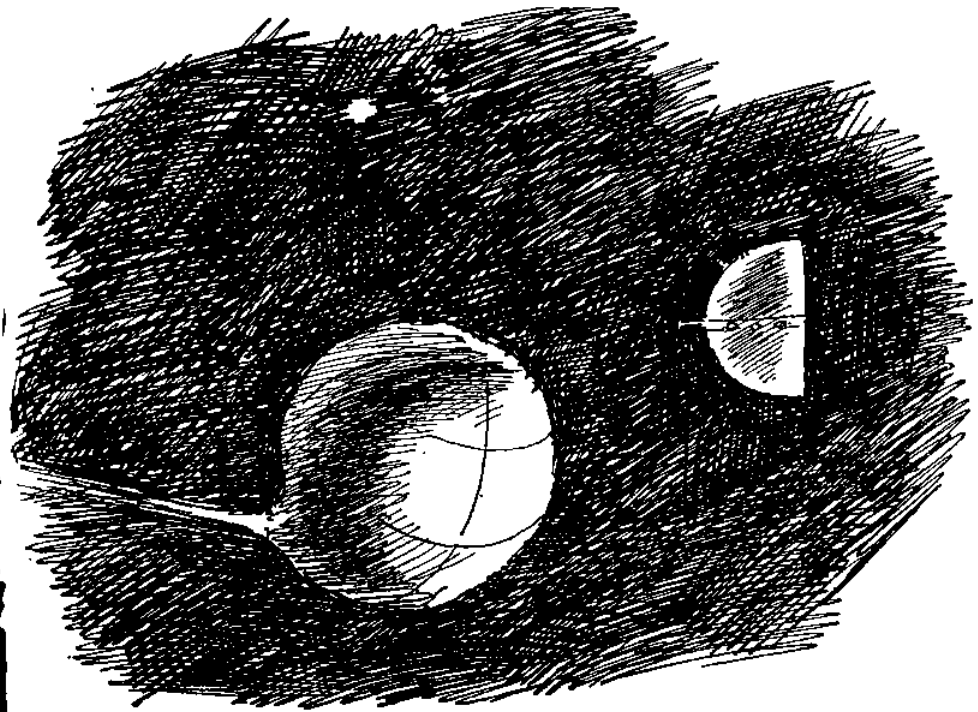
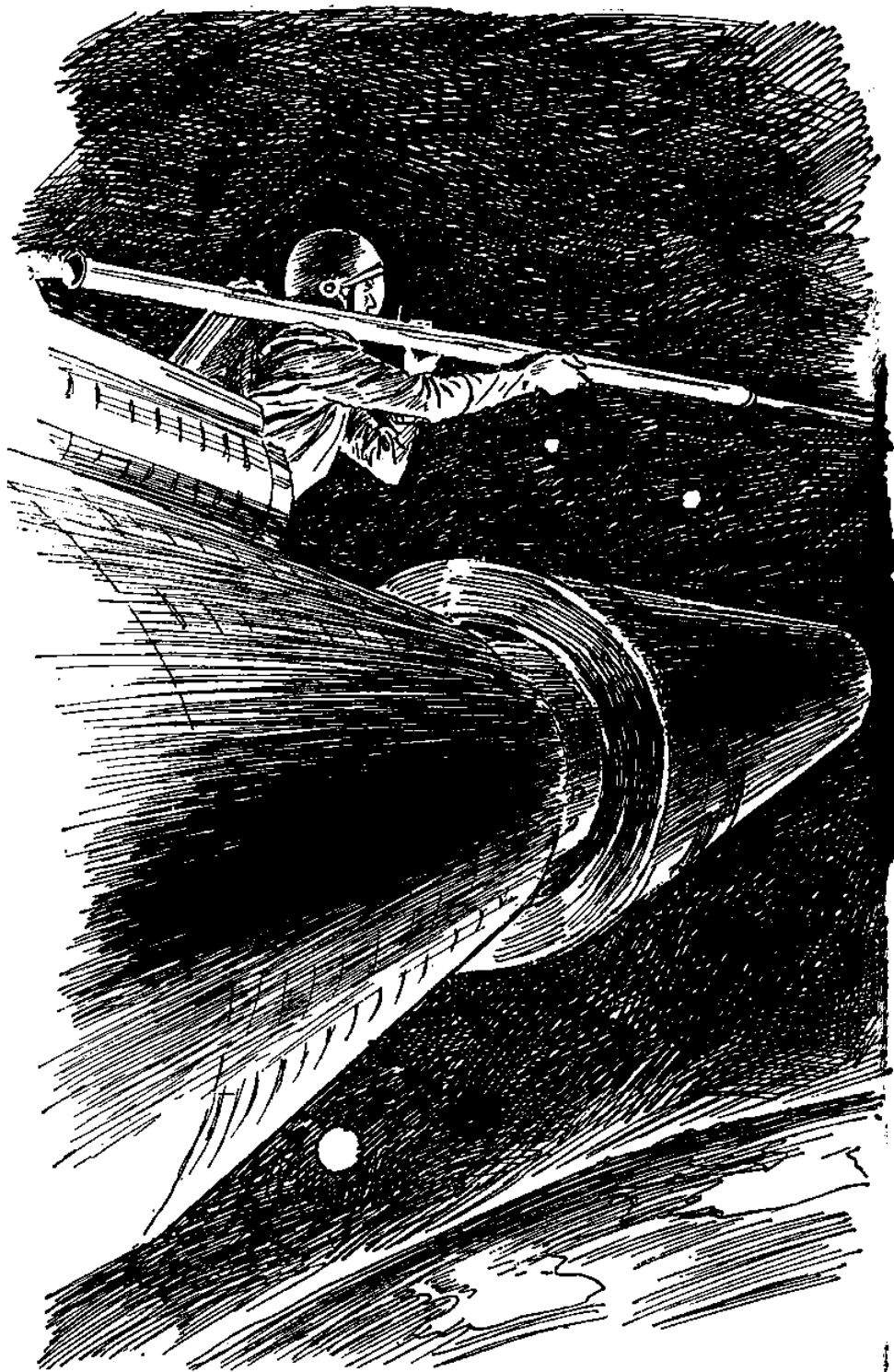
Though the mystery satellite seemed to be visually close, in actual distance it was still more than a mile away. The investigating Echo satellite that it had fired upon had come closer. If it was armed to fire at any intruder, it was obviously not likely to be accurate or even triggered at the distance the Gemini had maintained.

Mike was not going to leave the Gemini until he had first determined whether the satellite was still firing at any approaching object. There was a possibility that a bulk as small as his body would not trigger it. There were also other possibilities, and he would test them if needed.

He did not leave the hatchway of the Gemini but sat in it and stared at the strange alien sphere. Then Johnny handed him the bazooka tube and Johnny pulled it outside the capsule and directed it at the satellite.

Johnny handed out another object, a sort of bundle attached to the slender rod of a rocket shell. This Mike fitted into the launching tube. He aimed the bazooka carefully to have his shot come as close to the satellite as possible without actually hitting it. He fired.

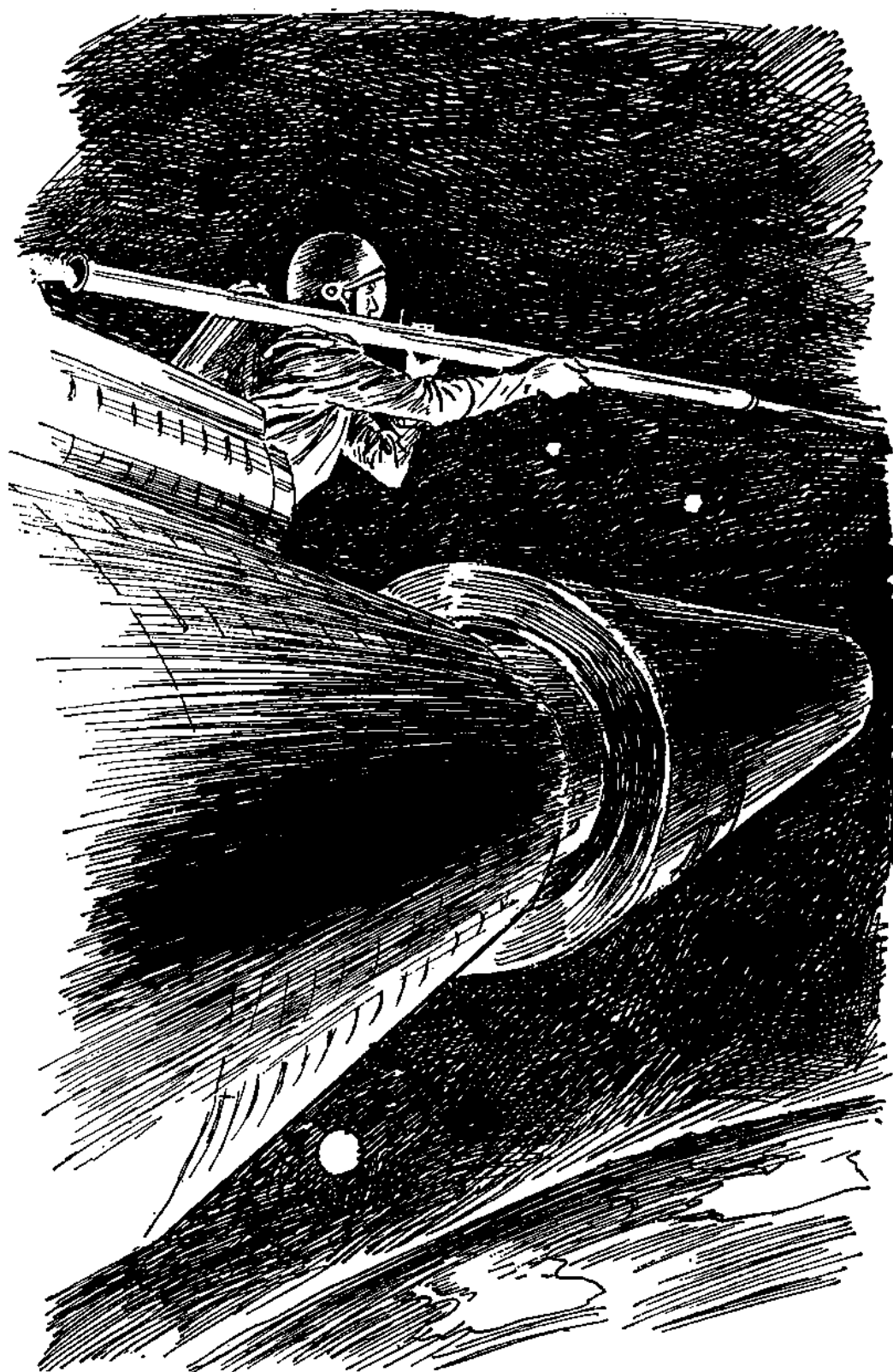
The rocket shell sped away on a little jet of red fire. He watched its course and saw it was true. As it neared Gamma 9, the bundle on the

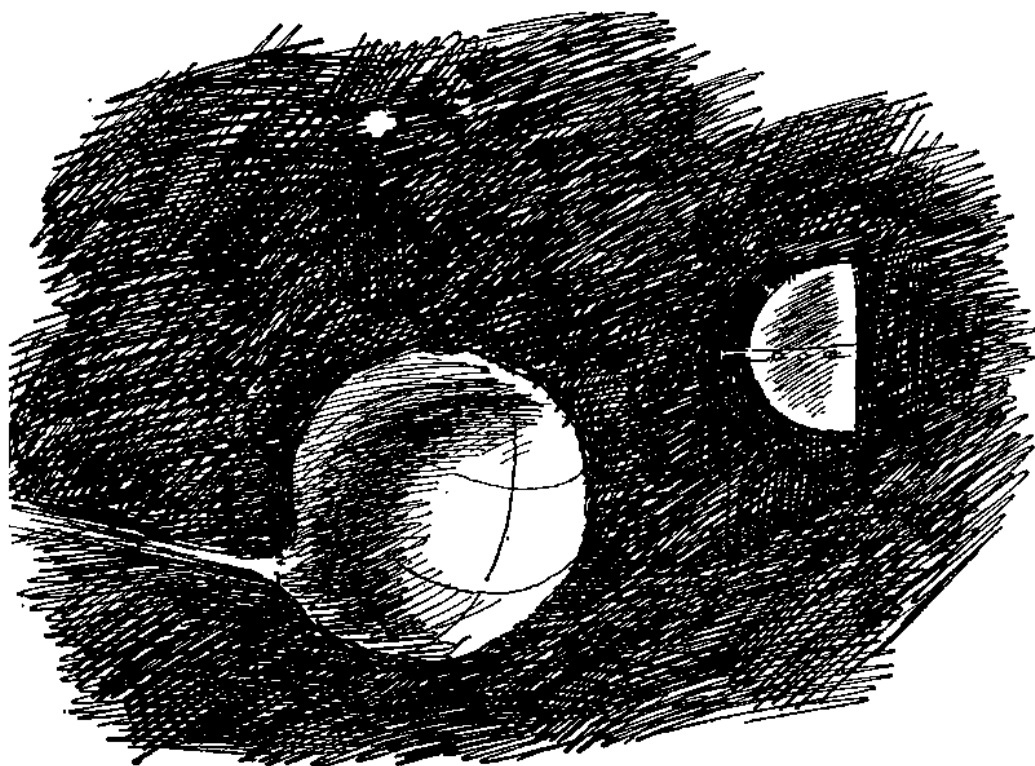


front of the rocket shell began to inflate. It was a plastic balloon and as it closed in on the moon-let it grew larger and rounder until it was almost as big as the mystery satellite itself.

Mike watched intently. There was a faint spurt of fumes from Gamma 9, from somewhere in the skin, and the thing could be seen to whirl slightly. There was a dual puff of smoke, one from each side, and the one from the side facing the oncoming balloon obviously launched a missile of some kind.

The balloon was punctured, but though the





front of the rocket shell began to inflate. It was a plastic balloon and as it closed in on the moonlet it grew larger and rounder until it was almost as big as the mystery satellite itself.

Mike watched intently. There was a faint spurt of fumes from Gamma 9, from somewhere in the skin, and the thing could be seen to whirl slightly. There was a dual puff of smoke, one from each side, and the one from the side facing the oncoming balloon obviously launched a missile of some kind.

The balloon was punctured, but though the

gas inside moved out, the skin merely seemed to shred and continue on its course. In seconds the decoy target was gone, moving out of sight. The satellite was still on orbit.

"Evidently it maintains its position by twin shots, one counterbalancing the other," said Mike on his throat phone. "It must be guided by radar automatically. Now I'll try a man-sized balloon and see what happens."

He fitted another bundle-shell into his bazooka. Again he aimed and fired.

The rocket sped on. But this time, though its bundle inflated into a six-foot-long oval object, the satellite did not respond.

"Ha!" said Johnny from inside the capsule, and his exclamation matched Mike's. "Its radar gun is not sensitive enough."

"I think that means I'm too small a target for it to pay attention to me," said Mike. "I'm going to chance going over there."

"Guess that's best," said Johnny. "But watch it. If it starts to spin, get out of the way. Maybe if you come up under it, from the side that's directly below the twin guns, it'll be safest."

"I won't take any extra chances," said Mike. "That's what I'm going to do."

CHAPTER 17

INSIDE GAMMA 9

GAMMA 9 hung in space before Mike's eyes. Mike pressed down on the handles on each side of his flying belt, and little jets of gas spurted out behind him, at his control.

He moved across the emptiness of the sky as if he himself had become a tiny rocket ship, man-like in shape. Motion was a strange thing, for he did not feel any rush of air against him or any sensation besides the faint pressure of his suit against the front of his body.

Behind him the Gemini-Agena combination seemed merely to get smaller, and before him the shining construction seemed to grow clearer and larger. Below him, had he looked, hung a hundred miles of nothing—space—then the thin outer edges of the atmosphere and finally the misty surface of the Earth. Above him stretched only the infinite reaches of the entire universe.

Mike was a young man of imagination, a young man whose dreams since childhood had been of space and the conquest of space. He had trained for this moment, he had imagined this moment, and he had even experienced its excitement before. Yet it still was an event that thrilled him to the bone, that tingled in every cell of his body. He was saying words softly to himself as he drifted across the empty bit of sky, that bit of heaven that separated the two man-made intruders in the realms of the eternal.

He was reciting a little poem he had made his own when but a boy. It had sustained him during other trials; its words forced themselves unbidden on his tongue now, and he said them to relieve himself, to keep his mind on his main objective.

“Michael Mars is my name.
America’s my nation.
Space-flying is my game—
And Mars my destination!”

The little poem, no more than a jingle, nevertheless reminded Mike who and what he was. Never mind the terrible emptiness of space, never mind the cold millions of distant suns that were the stars, and the remoteness of the warm breath-

able surface of his native planet—he was Mike Mars, he was a space pilot, an American space pilot, and he would never rest until he reached that neighbor planet which was his dream and goal. Everything that had to be endured was a necessary step in that direction, even this.

As he finished softly breathing the words, an equally calm voice whispered in his ear, that of Johnny Bluehawk, “I read you, Mike. Follow through. You’re on course.”

Mike grinned to himself, and suddenly he wasn’t uneasy any more about his position out there alone. He was not alone, he was never alone. Near him was his friend, and below him was a nation of his friends, pulling for him, listening to him, standing by him.

For just a moment he was an arm for all his country, and he felt that strength pouring into him.

The mystery satellite moved toward him and he studied it as it hung against the near blackness of space. It was like a big steel ball that had been cut off at one end. The end that was flattened undoubtedly was where it had been connected to its parent rocket. The rest of it was spherical, and he could see panels in the metal where the parts had been joined together.

A ring of metal rods, about twelve feet long each, circled the equator of the mysterious globe—antennae by means of which the object undoubtedly was intended to maintain contact with its ground station or possibly pick up power signals.

The size of it grew as he approached it, and at last he reached out a gauntleted hand and felt the faint touch of its surface. He stopped his movement, hung next to it, and looked it over. As he did so, he talked into his throat mike, so that Johnny could know what he saw and could know what he was doing. All that he said would go on tape and would be relayed down to NASA on Earth and studied there.

Even if the satellite were mined and even if he gave his life, what little he might learn would not be lost.

"It's about twelve feet in diameter," Mike said, "and it is large enough for an astronaut if necessary. It could be big enough to contain an atomic bomb." He moved slowly around it, examining it.

"There are exhaust vents in the flattened base, they could be rocket tubes. This might mean the thing is capable of re-entry. If it were a floating sky bomb, such tubes could bring it out of orbit and cause it to come down wherever its directors

wanted. There are just two short gun vents along the equator."

"Don't touch the rods, Mike," said Johnny's voice. "They could be detonators."

"I understand," said Mike. "I will avoid them. Though they look from here more like simple antenna rods. I now see, directed at the Earth, three lenses set in the surface. These may be cameras or television eyes. I do not see any port-hole for direct observation."

He drifted slowly around the satellite. "There are no letters or markings on the surface of the metal at all. There are no national insignia or colorings of any kind. Whoever sent this up did not want it identified, or else never expected it to return to Earth."

He looked closely now at a section he had noticed on his tour around the sphere. "There is a panel here that seems to be connected differently. The other sections would appear to have been welded. This looks to have bolts on it. It may be the means of opening it and getting into its interior. I shall try to open it."

He reached over and brought his sack of tools around. Looking into it, he reached in and brought out a wrench. He touched one of the several bolts

that protruded from the round panel and tested it.

"Careful, Mike," said Johnny's voice. "If it's bugged, that could be the spot."

Mike's lips tightened. He had been thinking the same thing, but he felt that a device like this must have had some means of checkout prior to launching and this could be it. The wrench failed to budge the bolts. He announced this, then added, "I'm going to try to burn out the bolts and get this can open."

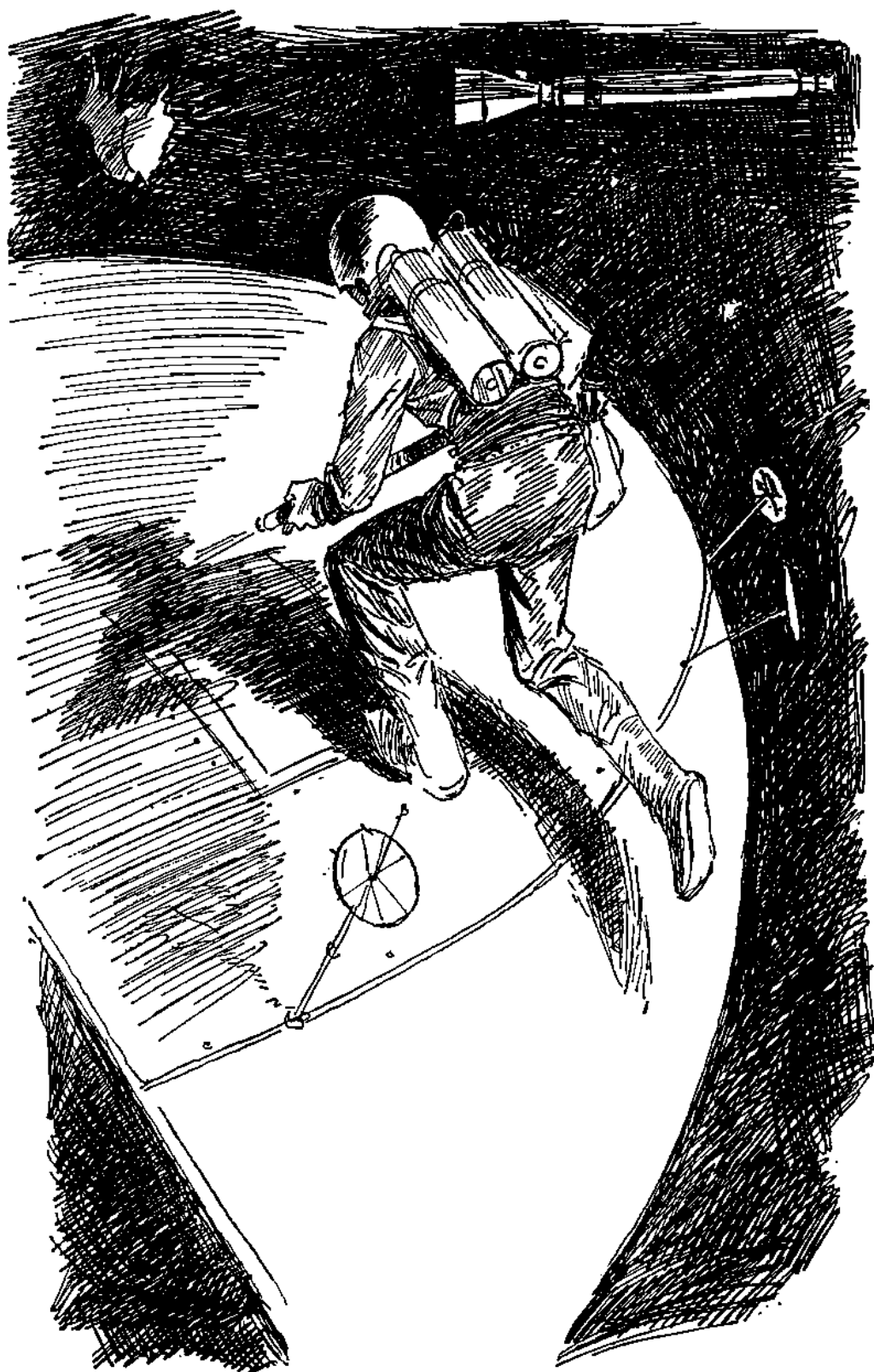
He took out a small cylinder, attached a little pencil-like tube to it, flicked a switch. There was a spark, then a solid blast of white fire shot from the tube. At the same time, Mike shot backward and away from the satellite.

"Oops!" said Mike, and snapped off the torch. "That's a neat little rocket engine all by itself, that hand torch." He manipulated the flying belt controls, brought his backward-hurtling body to a standstill, and then directed himself once more toward the satellite, already distant from him.

"Watch it, Mike," said Johnny. "Gave me a bad scare then."

"Gave me a worse one," said Mike. "I should have realized."

It took a few minutes to return to the satel-



lite and his previous post. Once there, he braced himself against the metal side of the strange sphere, paying no further concern to the danger of being blown up by hidden mines. Then manipulating his flying belt's jets to counter the force of his hand burner, he got the torch into action.

He burned off the outer bolts with astonishing ease. In the icy frigidity of space, the metal had become quite brittle and, confronted with the blast of the tiny torch, cracked to pieces. It was tricky work nonetheless, for Mike was holding his breath fearing drift or breaking.

The bolts gone, he pushed at the panel, felt it give slightly. He shoved again and suddenly it was whisked aside. Again he felt himself being shoved backward. This time he was prepared for it, and he kept his belt operating to hang nearby while the gush of escaping air from within the satellite thrust aside the hatch door and burst out into space.

He looked back, as he clung to the rim of the opening and he saw that the Gemini-Agena was suddenly very tiny and diminishing. "Johnny," he called. "The exhausting of the satellite had a rocket effect. Better remedy the distance of our vessel. Bring it up closer again."

Even as he finished, he saw a spurt of fire from

the tiny outline of the Gemini and then it seemed as if the American vehicle was growing again. Johnny was bringing the capsule-rocket back to even the distance.

Satisfied that this was taken care of, Mike glanced into the interior. It was dark in there and there seemed to be a short narrow passage within. He lifted a flashlight from his kit, flicked it on, looked inside.

The narrow passage opened into a tiny sort of room, large enough for one man bent over. This was not meant to be a manned satellite, but it was designed for entry by an engineer for correction or checking.

"I'm going in," he said. "I'm climbing through the narrow entry hatch now, it's barely large enough for me to pass. I am inside now, and my feet are still in the hatchway while my body is hanging inside the little space here."

"I hear you, Mike, and be careful," said Johnny.

"I am in an area surrounded by what seem to be recording and transmitting instruments; there are dials and several lit panels. This satellite is in operation. There are rolls of tape. Wait, now one roll is moving and dots are being punched on it. And yes, here is a standard disc, punched for

various combination. It has just turned to establish an automatic connection here. A light has lit. And, ah, yes, this equipment is Russian. I recognize the lettering on these panels. This is a Soviet device.

"Johnny, this thing is a spy satellite! It is receiving recorded messages from somewhere on the surface of the Earth below us. Quite obviously it responds to specific radio signals, checks in the signaler and takes down in code whatever message is transmitted. And it obviously will re-transmit its messages on command when over its parent station."

"That's a lot of guessing, Mike, how can you be sure?" said Johnny's voice.

"I'm sure," said Mike. "We saw this kind of automatic station demonstrated at Langley and at Goddard, and we've seen variations of this explained to us at the Vandenberg Discoverer base. It's not the same, but I can recognize the type of apparatus and that's what it has got to be."

"Then this mystery satellite is a secret information receiving and transmitting station," said Johnny's voice excitedly. "It's a spy in the sky!"

"Right," said Mike. "And if I can get these tapes out and this master disc, maybe our Intelligence men can trace the senders and the kind of

information being sent. We could break up a whole spy ring with this!"

He reached down, and with his wrench, started immediately to dismantle the equipment. There was a flashing of sparks as he cut the power cables that fed from somewhere inside the sphere. He hacked out the delicate bearings that fastened the main recorder, noting how it had been installed, and moving with haste but care, he worked loose the central device, the most important part of the entire sphere.

"Mike," said Johnny's voice sharply. "I am in touch with Woomera Station and they tell us a Soviet space object is orbiting for us. They warn us that it will cross our path in another ten minutes! It may mean trouble! Can you hurry?"

"Doing the best I can," said Mike, gritting his teeth, but not letting his hand tremble. "I have some work to do still."

He had the equipment loose now. He pulled it toward him, snapped a cord of his suit to it. Then he reached into his kit and pulled out a plastic bomb.

CHAPTER 18

THE RED EAGLE SWOOPS

WORKING rapidly, he stuck the powerful little bomb in what he judged to be the central area of the "floor" of the satellite, on that side nearest the probable area of its fuel tanks. Taking out a little mechanically timing detonator, he attached it, set it for ten minutes, and then started to back out of the cramped space.

He worked his way outside the satellite once again, dragging with him the coding apparatus. Clinging to the open hatch he looked about.

There was no sign of any other space vehicle in the star-strewn sky, but then, it would be visible only a few moments before it flashed upon them. Below he could see that on Earth the white mass of Antarctica was showing. Mentally he calculated how much time would be available before they passed over the United States once again.

"Coming across, Mike?" Johnny's voice said anxiously. "Better hurry."

"Everything is Go, here," said Mike. "I'm on my way back."

He secured the various things he had with him, his tool kit, the stuff from the satellite, and so on, then turned himself toward the Gemini and pushed off with his feet against the spy-in-the-sky satellite. The initial push, like that a swimmer gives against the side of the pool, sent him away across space.

To him Gamma 9 seemed merely to have moved away and the trickiness of space did not at once change the Gemini's appearance. He was moving and he would continue to move, but he wanted to speed up. He grasped the controls of his flying belt and sent the gas jets streaming.

Rapidly now White Knight One grew in his eyes, seeming to balloon up, covering more and more of the stars from view. Johnny's voice came on again, "The radar shows an object approaching from outer space. Coming in as if from an outside orbit."

Mike watched the Gemini grow as he came toward it. "Have you unlimbered your bazooka, Johnny?" he said.

"Ready and waiting," said the Cheyenne's

voice, cool and deadly quiet. "I want to wait until you're back before getting out with it."

Mike was close to the Gemini now. He reached out with his hand, while cutting out his belt jets. He barely touched the side, then swung himself and circled the capsule as he countered his drifting speed. "I'm about to come in," said Mike.

"Radar says he's almost on us," said Johnny. "Don't block the door if he comes about."

Mike turned his head. Would the newcomer be visible? Then he spotted it. There was a bright sword of orange fire somewhere, like a fleck of a comet. That would be a rocket tube blasting. The oncoming vehicle was a spacecraft, under control and braking, stopping its own orbit to adjust to theirs and to come alongside.

Swiftly he described its location to Johnny. At the same time, he reached the still open hatch of the Gemini. "No time, now," he said. "I'm going to shove this stuff in, and you push that bazooka out."

He matched his actions to his words. Swiftly he thrust the loot from the satellite inside, slipped off his kit and freed his body. He paid no attention to the space around him. Where that strange spaceship was would have to wait.

Johnny's voice on his earphones kept him ad-

vised. "He's in plain sight now, coming up a bit ahead. But he's not going to pass us."

The hatch momentarily cleared, the long tube of the Army bazooka was pushed through, and Mike grabbed it and pulled it out. A moment later, a brace of rocket shells was thrust out, and Mike clung to them as he turned to point the tube of the rocket launcher to where the foe should be.

He saw it then, a thing like a rather uneven metallic egg, and he recognized the shape as similar to the photos he had seen of the bigger Soviet space vehicles, the kind that cosmonauts had spent several days in orbit in. There was no mistaking its origin.

As he struggled to set up the tube and slip a rocket into it, there was a sudden glare of light reflected from his helmet. He swung his head around, looked behind him. He caught the fading out of an explosion some hundreds of yards behind him.

The newcomer had fired first. First shot, from a similar rocket gun, and the shell had missed, exploding beyond them.

In a split second Mike recalled the warning always impressed on him during his training, defend yourself if fired upon. Don't be the aggressor. Well, he had his cue. With a rocket in

the bazooka tube, he swung the long pipe, pointed it at the Soviet vehicle, and pressed the trigger.

There was a flare of red from the end of the tube, a flash of red raced from the other end, and he could follow the flight of the rocket shell. On it went toward the vehicle, and he saw that it would miss. He slipped another shell into the tube.

Somewhere overhead another flare briefly flickered in his eye. The Soviet's aim was not much better. There was a lot to be learned in space warfare, Mike thought. He said to himself, don't hurry. Take careful aim.

He aligned the tube once again on the foe. He drew in his breath. Johnny was silent on the radio, doubtless holding his own breath.

Once again he pressed the trigger. Once again a flare of red fire left his tube.

There was no recoil for Mike from this type of weapon. Had he used a rifle it would have acted as a reaction engine on him, he would be miles away now from the kickback. But he still hung just a few feet outside the floating capsule, a separate body in space, firing.

The rocket shell sped on, this time seeming true.



He saw a puff from the rear vents of the Soviet vehicle. Whoever was in there was trying to shift position. There was a double blast of fire. One was from the tubes of the foe getting into action. The other was Mike's rocket shell exploding against the side of those same tubes.

Then there was a third flare, off to Mike's left. It was bigger and lit the near side of the Gemini briefly and brilliantly.

Mike looked. Where Gamma 9 had been, there was a rapidly disappearing cloud. Something small and metallic sailed past his vision. The bomb he had set had gone off.

The spy satellite was no more. Blown into a few hundred pieces, it was scattering through space.

He looked ahead again.

The Soviet spacecraft was rapidly vanishing. It was headed down and away from them, and he saw it as a dot against the white of the Antarctic below them. He saw a tiny spot of fire and then it was gone.

"We got him!" yelled Johnny's voice.

"We scared him anyway," said Mike. "He's not entirely out of commission. I saw his engine start. But he won't come back. He must be damaged. And the satellite is gone."

"Hooray," said the Cheyenne's voice, now suddenly elated. "Score one for the U.S."

Mike grinned too, in sudden relief. He moved by his belt jets back to the hatch of the Gemini. Shoving the bazooka inside, he followed it with his body.

Inside, he swung the hatch cover closed, and fastened its toggles. "Get some air back in here, Johnny. We've got to get home."

Johnny started the pumps going and as Mike worked off the flying belt, he kept an eye on the internal pressure gauge.

Once free of his outer space accessories, he slipped across Johnny and back into his own seat. He refastened his suit to the recording instruments.

Quickly they checked back the instruments to each other.

"In eighty minutes we'll be over the United States again. We should try to bring her down," said Johnny.

"Yes, but in thirty minutes we'll be over China and Siberia. Do you think we'll get any more trouble?" Mike remarked.

"They may try some rocket artillery shots but that would be a little foolish. They haven't much chance of hitting us, not with what seems to be

the present development of their systems in artillery," said Johnny, adding, "I hope."

"We'll decelerate over the North Pole," said Mike.

They were silent for a while, checking their readings, catching their breath, just thinking.

A faint voice buzzed over their phones. Gradually it cleared and strengthened.

"Zanzibar Station here. Calling White Knight One."

Mike opened the transmitter. The fight over the Antarctic had not been witnessed by anyone. But the Russians would not want to admit any complicity. Once he described his position and plans to Zanzibar and through them to NASA, the Siberian space artillery would surely leave him alone.

As it was, bringing the Gemini down was going to be an untested feat in itself.

CHAPTER 19

THROUGH THE ARCTIC PORTAL

TRUE to Johnny's hopes, they orbited over the surface of China and Siberia in peace and calm. Below them, clouds laced the surface, but no man-made thing came up into the heavens to disturb their silent movement through space.

They had been working their own computer during those minutes, figuring out the best timing for the maneuver to come.

At the indicated time, when they were somewhere near the North Pole itself and the planet below them showed its frozen white Arctic Ocean, they detached the Agena rocket. A touch of the switches and the connections were cut. A touch of the capsule's jets and they moved away from the cylindrical body of the rocket, leaving it alone in space to float in its own orbit for days and possibly weeks until time would bring it close

enough to the air blanket to slow it and burn it out in falling.

Immediately after quitting the Agena, Mike pressed another of their controls. This time the wide equipment section of their Gemini capsule was cut loose and it too drifted away from the slight momentum of its release.

The remaining sections of the Gemini were then in position to begin the return to Earth. The capsule swung about with little spurts of its jets until it was traveling wide end forward. At a predetermined moment, Mike fired the retro rockets.

The boys felt the pressure on them as the forward motion of their craft was slowed down. As it slowed, their orbit would cut down, scaling closer and closer to the Earth until it was no longer an orbit but a long ballistic curve which would bring them into the atmosphere and finally down to touch on the surface of the Earth.

This was the really dangerous part—the heating up of the shell as the air grew around them, the possible bucking that might occur in that long, long fall.

But Mike and Johnny had been through this part before, many times, and it was like a lesson well learned. They rode it out, holding the vehicle in check, watching the rise and fall of the heat

from their forward heat shield, which had been automatically brought into position once they had discarded the last stage of the capsule.

"So far, so good," said Mike as they saw the heat begin to diminish. "We're down to about 100,000 feet now."

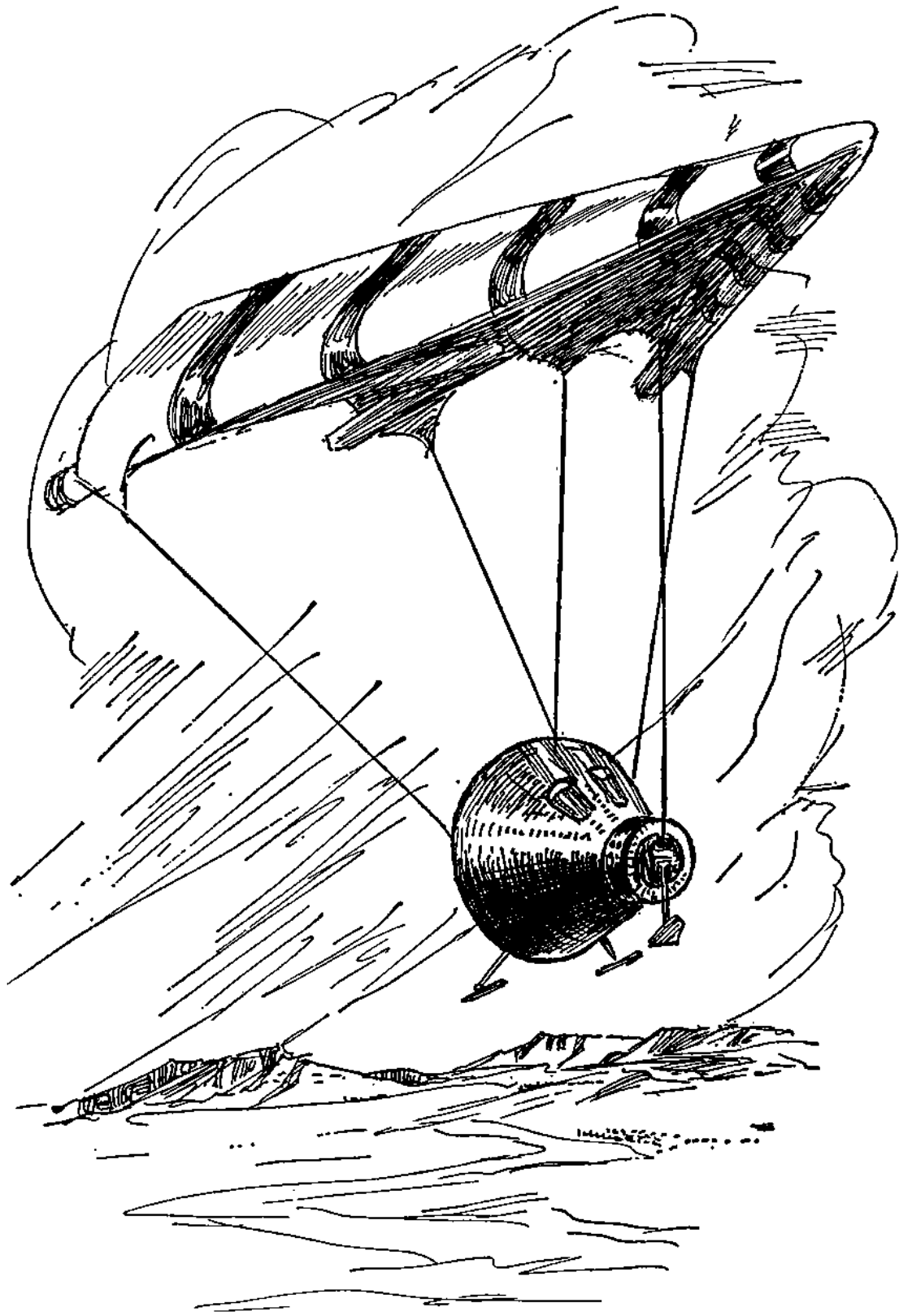
The time was many minutes later. Below them was the surface of North America, northern Idaho probably. Already they had established steady communication with bases and Van Ness was on the beam.

They continued to fall, and at 60,000 feet, Mike said, "Now!"

At his signal, a hatch blew off the narrow end, and a red and white striped drogue parachute popped out. As it inflated, the capsule jerked back, swung back and forth, and then began to slow its fall.

Mike kept an eagle eye on the controls. Again, he pressed a button. Now the drogue slipped away as another unfolding fabric device plumped out and began to work into shape. At 50,000 feet, it started to unfold, at forty thousand it was fully inflated and took hold.

The new landing device was a construction of coated fabric called a paraglider. A sort of parachute combined with a glider wing, it resem-



A paraglider in action

bled a thirty-foot-long dart with a wingspread of over forty feet. The capsule hung below this big glider like a package in suspension.

At this point the problem was simply the navigation of a glider in air. It was a clumsy sort of glider, but it worked. It could be controlled and Mike handled it with a certain pleasure, for gliding had been a hobby of his in high school and it was something he had received much training in during his astronaut work.

The curiously striped glider with its cosmic package moved gently down toward the surface in a long easy swoop. Johnny was talking to the ground and now he told Mike, "Wendover is ready for us. Take her down on the salt flats."

"Good," said Mike. "That's a perfect place. If we crash, we'll be well salted anyway."

"Better than being peppered up there," said Johnny, and they both laughed. The tension was over.

The glider came slowly down, the great white expanse of the hard-packed Utah salt plains stretching out beneath them.

Now another control and another secret of the Gemini capsule was unveiled. Unlike the Mercury, this bigger spacecraft had landing skids, like those used on the X-15. Two skids jutted out

on legs from the wide end, one skid from the narrow front end.

The glider came lower and lower. The surface rose to meet them. Mike watched with care, for their forward speed was still great.

Then with a bump the rear skids hit the surface. Instantly Mike released the cables holding the glider. The big surface of the fabric wing snapped away and the front skid came down and the capsule went sailing along for a few dozen feet over the hard surface.

Then, in a cloud of salty dust, it came to a stop.

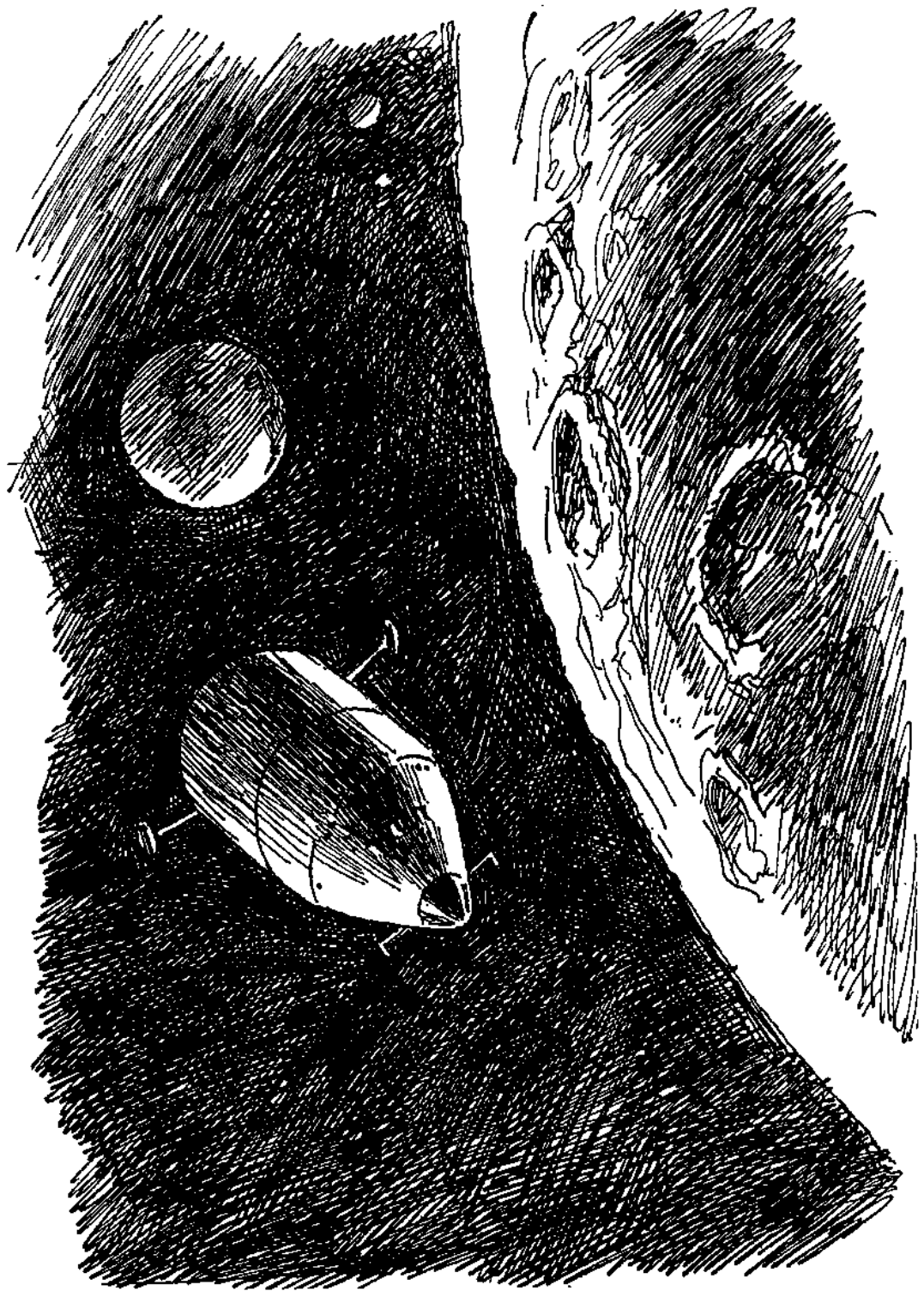
Mike let out his breath. He opened his face helmet, reached down and started to unsnap his suit.

"Home again, Johnny," he said.

The Cheyenne was laughing, as he too got up. "I hope they don't take too long to get us. I have a suspicion it's mighty hot out here on this barren plain."

"I think I see them coming now," said Mike, as he noticed a cloud coming over the horizon. "Must be the trucks from Wendover Air Force Base."

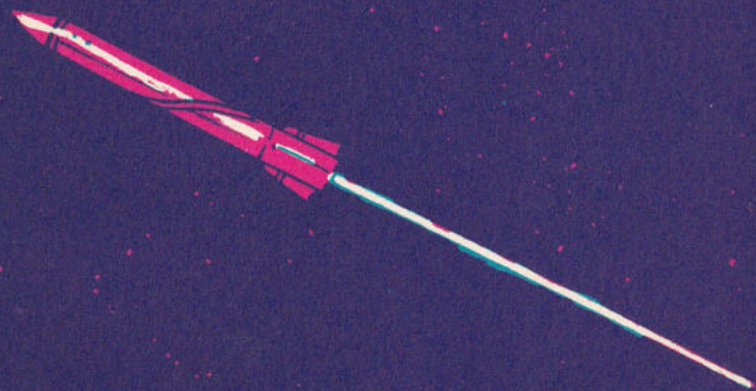
Then a jet flew over them, made a wide circle and swung back. "They've found us," said Mike.



“What do you suppose happened to that Soviet cosmonaut?” Johnny remarked as they waited for the oncoming motor caravan to reach them.

Mike shook his head in silence. He figured they’d know soon enough. And he figured that wouldn’t be the last clash they would have in outer space. For him though, he’d climbed another rung on the ladder to Mars. No matter what new obstacles of man or nature came his way, they wouldn’t stop him.

Just what was waiting for him in outer space will be made clear in the next book about Mike’s adventures. Watch for *Mike Mars Around the Moon*.



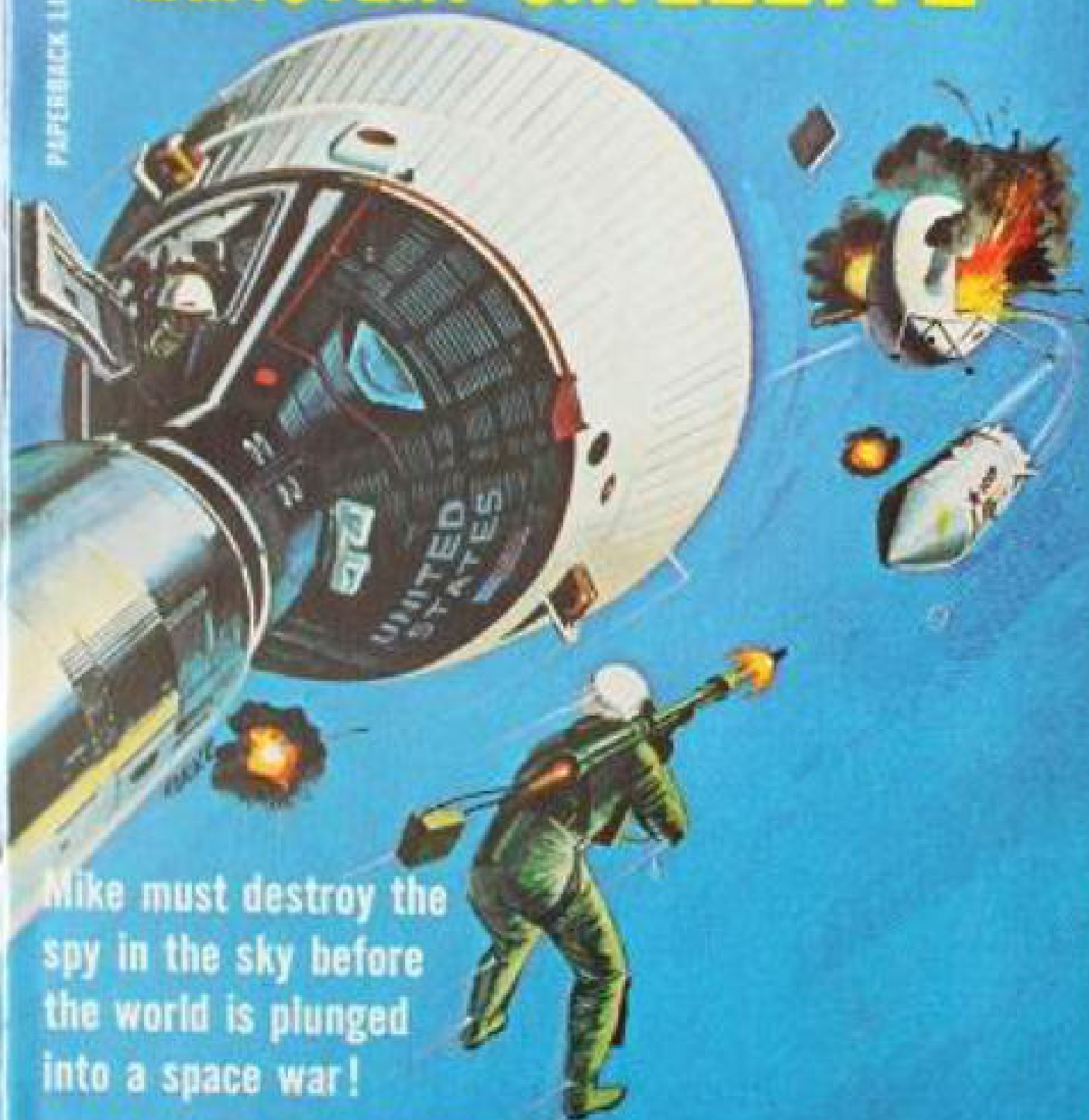


#7 IN A NEW SPACE-ADVENTURE SERIES

MIKE MARS

AND THE MYSTERY SATELLITE

PAPERBACK LIBRARY 454 56-363



Mike must destroy the spy in the sky before the world is plunged into a space war!

DONALD A. WOLLHEIM